COAL MINING

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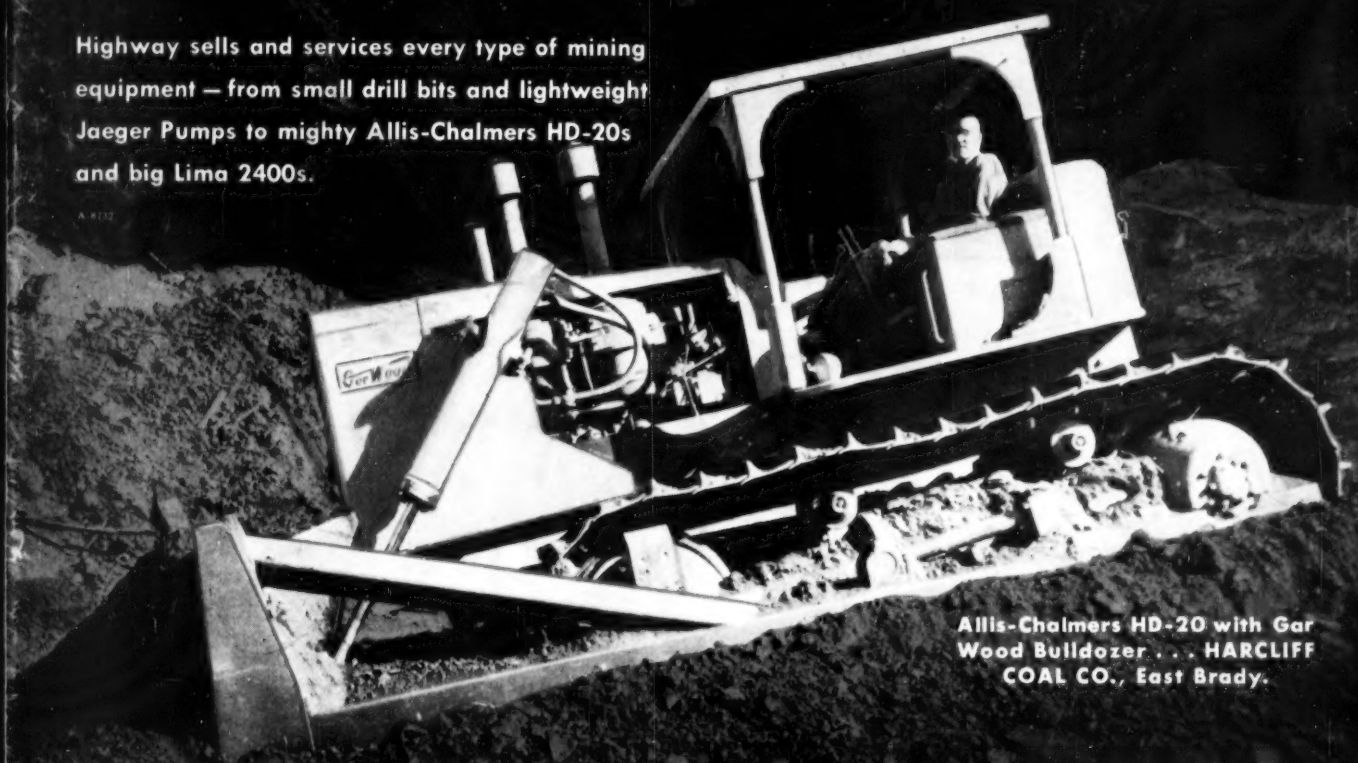
FEBRUARY, 1954

published by Modern Mining Publishing Co.
4575 COUNTRY CLUB DRIVE • PITTSBURGH 27, PA.

VOLUME 31, No. 2

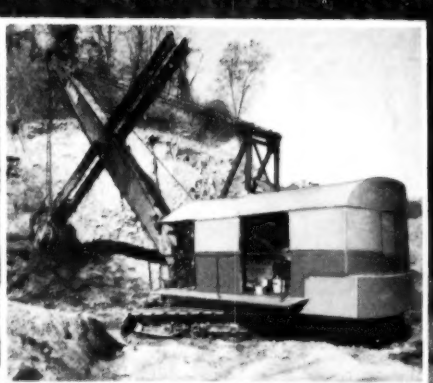
Highway sells and services every type of mining equipment — from small drill bits and lightweight Jaeger Pumps to mighty Allis-Chalmers HD-20s and big Lima 2400s.



Allis-Chalmers HD-20 with Gar Wood Bulldozer . . . HARCLIFF COAL CO., East Brady.

equipment you can trust!

3 inch Jaeger Pump . . . W. G. MOORE & SON, Houtzdale.



HARCLIFF COAL CO. also uses a Lima 1201 for shovel stripping.

Highway EQUIPMENT COMPANY
6465 Hamilton Ave. • Pittsburgh, Pa.

Allis-Chalmers • Jaeger • Baker
Gar Wood • Hough • Master
General Motors Diesel Engines
Thor • Wayne Crane • Erie Bins
Lima Shovels, Cranes, Draglines

JOY SUPER 14-BU LOADER

Performance—coupled with unrivaled simplicity of design and durability in service—made the 14-BU the world's most widely used loader in medium-low coal. Now, in the SUPER 14-BU, performance has been stepped up even higher . . . the machine can get in and out faster, load more coal and stay on the job better than ever before.

For example, horsepower is increased from 40 to 65 HP. Peak loading capacity is stepped up 20%, and the high tramming speed almost 50%. All mechanical and electrical components have been beefed up to match the oversize horsepower motor, and reduce maintenance costs. The conveyor chain speed is increased to more than 300 FPM—up about 30%—and the chain itself has 45% greater tensile strength. The loader actually weighs about 900 lbs. more, but heights are unchanged at 30½", 33" and 36".

Add extra advantages like those to Joy's famous gathering mechanism and exclusive Magnetax control—features that have been field-proved in every coal mining area in the world—and you have the kind of easy-operating, heavy duty, high production loader that means increased tonnage and reduced costs for you. ● Let us show you what SUPER 14-BU Loaders or other Joy Mechanized Equipment can do to improve your profit margin! ***Joy Manufacturing Company, Oliver Building, Pittsburgh 22, Pa.*** In Canada: *Joy Manufacturing Company (Canada) Limited, Galt, Ontario.*

Consult a Joy Engineer

JOY

WORLD'S LARGEST MANUFACTURER OF UNDERGROUND MINING EQUIPMENT

W&D CL 4839

SALEM

McCarthy
SELF-MOVING DRILL
HEAVY – RUGGED – POWERFUL

McCarthy barrel type cutting head produces maximum quality and quantity of lump coal.

42" COAL RECOVERY DRILL
Mining Low-Cost Quality Coal . . .

This hydraulically self-moving 42" McCarthy Coal Recovery Drill is mining up to 500 tons of clean, low-cost, quality coal per day at Hodgeville, West Virginia. It has a three-man crew — operates in pits as narrow as 34 feet. Operator has all-around clear vision, including highwall. Jacks, hydraulically operated, lift 48 inches. Model 12 is built to handle augers 24 feet long from 16 inches to 48 inches in diameter as specified. Other McCarthy Coal Recovery Drills use augers 4, 6 and 12 feet in length.

THE SALEM TOOL COMPANY
SOUTH ELLSWORTH AVE. • SALEM, OHIO, U. S. A.

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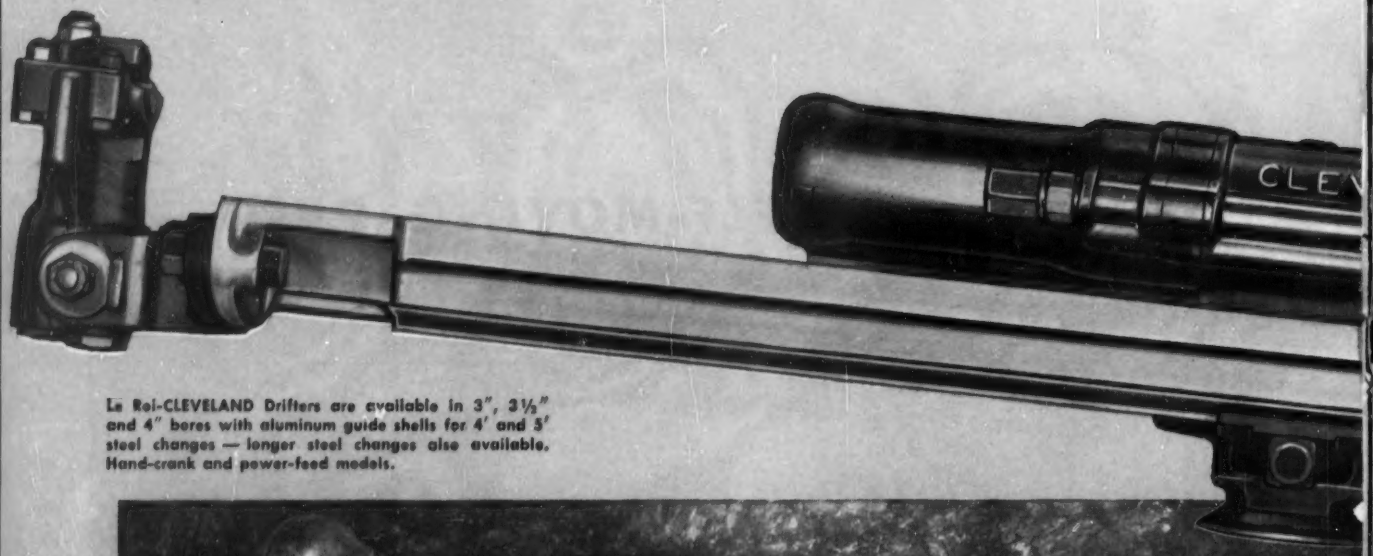
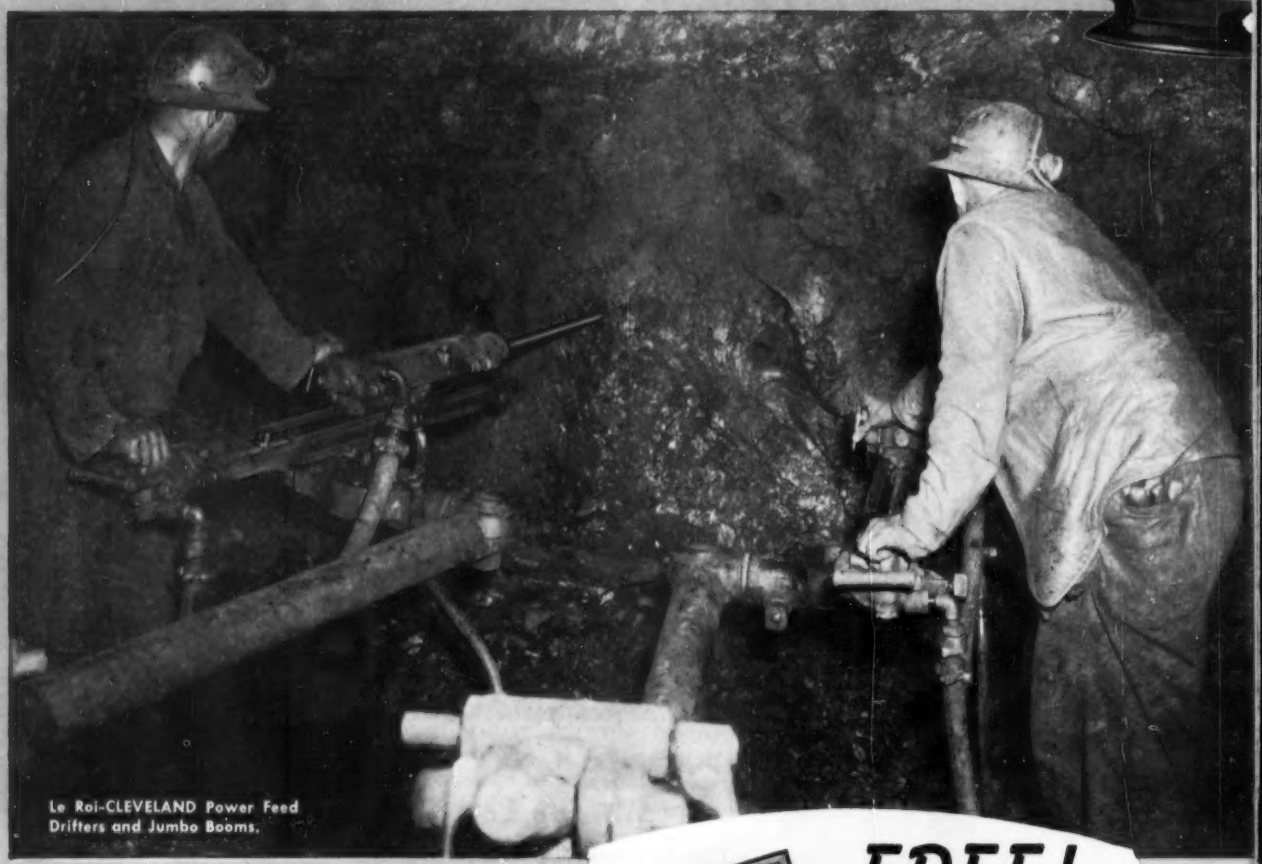
Published monthly by Modern Mining Publishing Company. Publication Office—Advance Printing & Litho Co., Erie, Pa. Editorial and Executive Offices—4575 Country Club Drive, Pittsburgh, Pa., P. F. JASIK, Publisher & Editor. Price: In the United States, $2.00 per year; all other countries, $5.00. Single Copy, 50 cents. Entered as second-class matter at the Post Office at Pittsburgh, Pennsylvania, under the act of March 3, 1879. Application for reentry applied for at the Post Office at Erie, Pennsylvania.

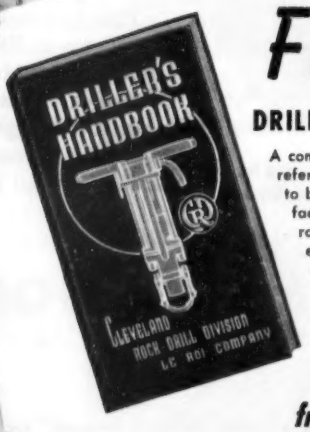


Le Roi-CLEVELAND Drifters are available in 3", 3½" and 4" bores with aluminum guide shells for 4' and 5' steel changes — longer steel changes also available. Hand-crank and power-feed models.



Le Roi-CLEVELAND Power Feed Drifters and Jumbo Booms.

Centralizer can be attached to any Le Roi-CLEVELAND Drifter. Directs the steel effectively, when collaring the hole. Easily cleared out of the way, either by hand or by the nose of the drifter, as the machine is fed forward.



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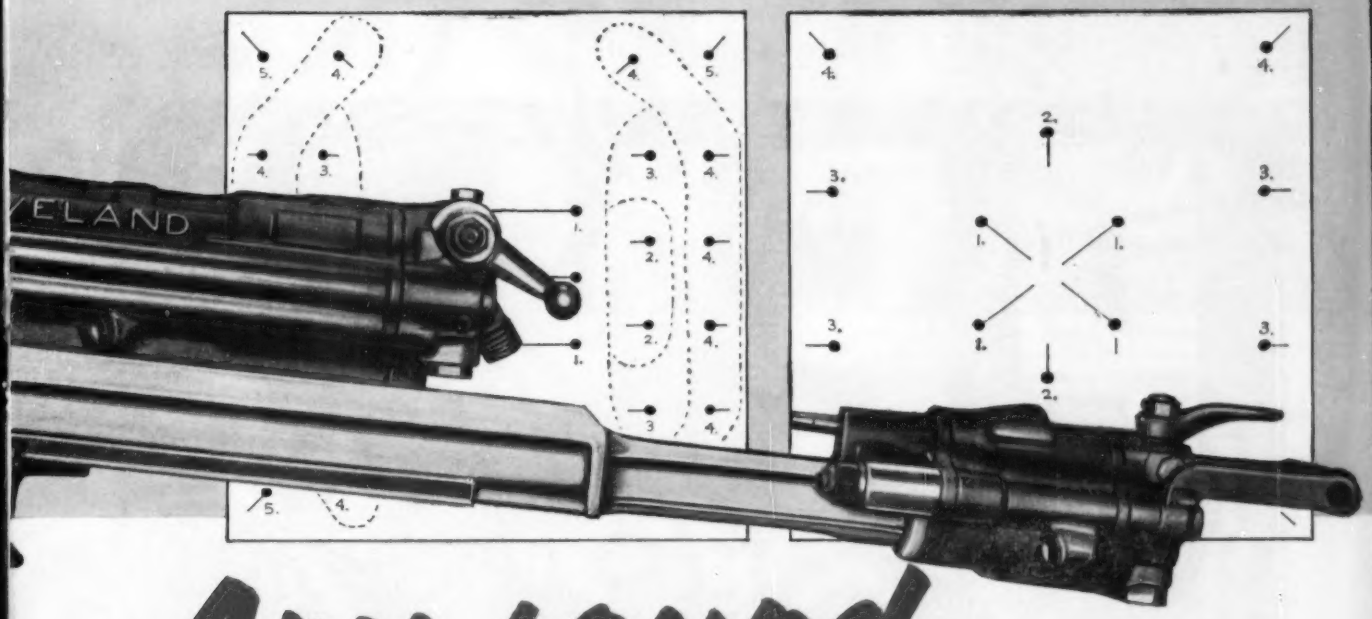
A completely revised, pocket-size reference book you won't want to be without. Gives you useful facts it pays to know about rock drills — lubrication, operating, maintenance, shanks and bits, compressed air lines, drilling and blasting, machine mountings, wet drilling, dry drilling, and other information.

Write for your free copy today!



Any round goes faster!

— with Le Roi-CLEVELAND Drifters and aluminum guide shells for 4′ or 5′ steel changes

No matter what pattern they use, your miners drill out the round faster with Le Roi-CLEVELAND Drifters.

It's easy to see why: Le Roi-CLEVELAND Drifters are easier to handle. And they have high drilling speed — plenty of rotation power — a wide selection of steel changes. In short, Le Roi-CLEVELAND Drifters have what it takes to drill more feet of hole per shift.

And — since they help raise your tonnages, they help cut your costs, too. That's because they use air economically — and because they're built "tough" to stay underground where they can do you the most good.

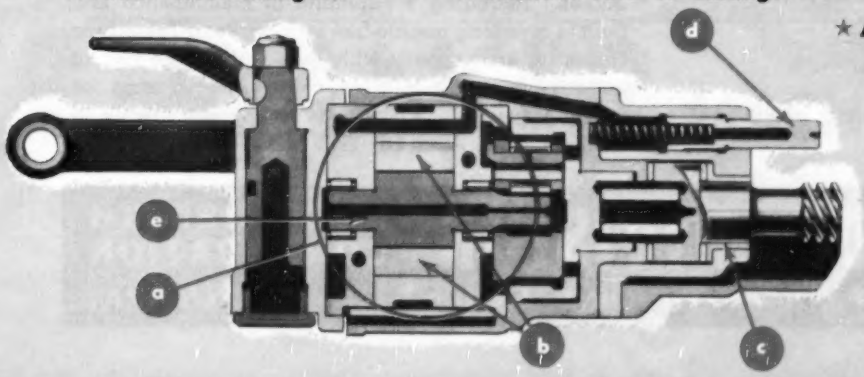
Yes, sir, Le Roi-CLEVELAND Drifters are "just what the doctor ordered," to speed up your drilling cycles, increase your footage, and lower your drilling costs. Ask your Le Roi representative for the whole story.

Write for free Bulletin No. RD25.

CLEVELAND ROCK DRILL DIVISION
Le Roi Company • A Subsidiary of Westinghouse Air Brake Co.
12500 BEREA ROAD • CLEVELAND 11, OHIO • *Plants: Milwaukee, Cleveland and Greenwich, Ohio*

Advantages of Le Roi-CLEVELAND Power Feed

★ ***Faster steel changes!*** ★ ***Constant rate of drilling!*** ★ ***Reduced operator fatigue!*** ★ ***More footage per shift!***



a. Motor proper is vane-driven, double-lobe type. Power is applied at diametrically opposite points of rotor — for better feeding action, more constant torque.

b. Vane-type design provides fast, positive feeding — uses little air.

c. Floating-joint construction and thrust washers absorb shocks, reduce upkeep.

d. Exclusive automatic shut-off valve prevents drifter from hitting feed motor, when changing steels.

e. One-piece rotor is carried on roller bearings at both ends. The three intermediate gears also operate on roller bearings.

RD-58

PENN

TELESCOPIC HOISTS

...do it the easy way

up to 50 ton capacity

1—Rugged Construction.

2—Fan and Gusset type hinge. 16" bearing surface . . . 3" rear shaft.

3—Polished and ground sleeves.

4—Heavy duty 2½" roller bearing pump and hoist meter.

HERE is a telescopic hoist that was designed as a rough and ready companion for Penn Steel Dump Bodies. Requiring a minimum of maintenance and built to give long trouble-free service, Penn Telescopic Hoists lift heavy loads with ease without the risk of bending or twisting. No cams, levers, arms or rollers are used—lifting power is applied directly to the load. BE SURE OF THE BEST—Specify PENN!

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. . . from ample stocks of factory-built parts ready for quick delivery. Planning replenishes stocks daily. Genuine parts fit accurately, give longer life.

. . . from the know-how of our trained, experienced personnel. Knowing what to do and how to do it saves you equipment downtime and repair bills.

. . . from fast service that fully-equipped Cat Dealer Service Trucks bring to your job. By planning ahead your call is answered in minutes!

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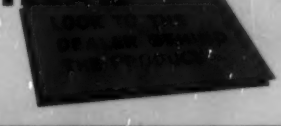
CATERPILLAR



MORE PROFITABLE FACTS ON THE FOLLOWING PAGES...

MORE PROFIT

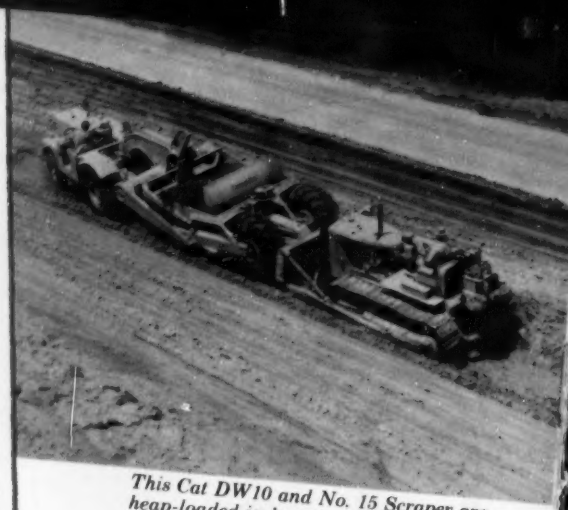
WITH

JOB PLANNED CATERPILLAR EQUIPMENT

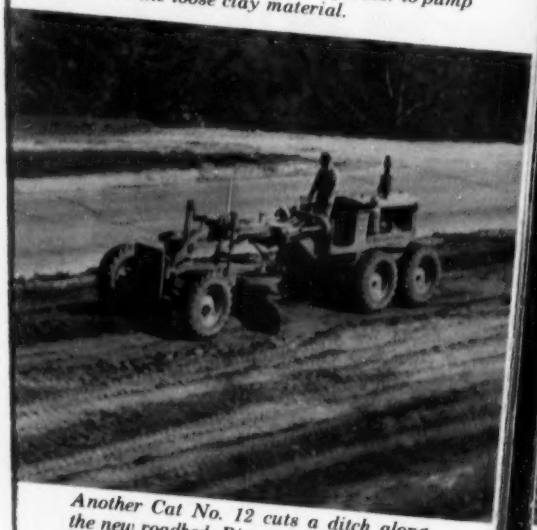
In modern earthmoving, it takes job planning for maximum production at lowest cost... and Caterpillar Equipment makes job planning easier.

With Caterpillar Equipment you can plan on *more* going time, for the machines are built with higher-strength metals, precision craftsmanship. You can make accurate forecasts of production and costs, for Cat ratings and capacities are determined by performance and not on paper. You can standardize on one manufacturer's machines, one dealer's service to lower maintenance costs and increase operator and mechanic efficiency. You can plan on prompt attention to your parts and repair needs or helpful application suggestions from your Caterpillar Dealer.

Ask your Caterpillar Dealer to help you plan your next job—for profit!

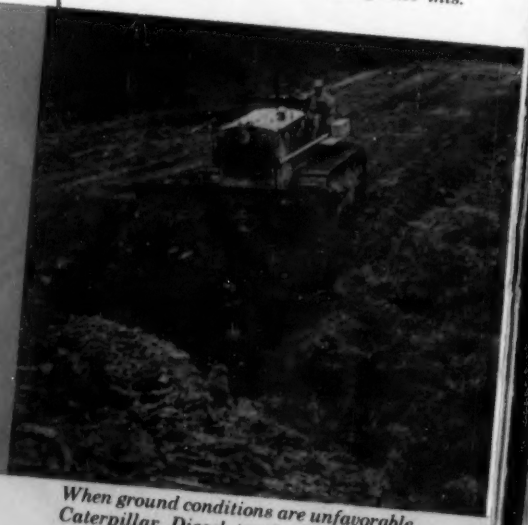


This Cat DW10 and No. 15 Scraper are heap-loaded in less than a minute with the pushing help of a D7. Fast-acting cable control enables the operator to pump in the loose clay material.



Another Cat No. 12 cuts a ditch along the new roadbed. Big tires, ample weight, good balance, plenty of power give traction for action in soft going like this.

The equipment shown on these pages, working on a road construction project, is owned by *one contractor* who has planned his job for profit—with Caterpillar Equipment. The complete Caterpillar line enables him to meet various job requirements and still gain the lowered cost of standardization.



When ground conditions are unfavorable, Caterpillar Diesel track-type Tractors take over the work. Broad tracks with ground-gripping grousers enable these tractors to work where wheels spin.

PLAN YOUR JOB WITH YOUR CATERPILLAR DEALER... his name

Hauling more than a ½ mile, the DW10s make a round trip in less than eight minutes, traveling over the highway and through traffic at speeds up to 24 MPH. Big air brakes assure safety.

Spreads are made in an average of fifteen seconds. Positive forced ejection empties the bowl completely. Six DW10s with No. 15 and No. 10 Scrapers are at work on this job.

THE CAT DW10—
PLANNED FOR PRODUCTION...

- Hydraulic-booster assisted steering.
- Welded box-section mainframe.
- Constant-mesh transmission.
- Crown shaved final drive gears.
- Powerful air brakes.
- Choice of matched-to-power work tools—9 cu. yd. or 12.5 cu. yd. scrapers, 14 cu. yd. wagon or quarry trailers.

Proper job planning puts a Caterpillar Diesel No. 12 Motor Grader to work keeping the haul road in shape for safe use of the DW10's highest travel speed.

This No. 12 is scarifying the hard-packed shoulder of the old paving before cutting a trench for a new lane of paving. This is one of four Caterpillar Motor Graders on the job.

THE CAT DIESEL MOTOR GRADER—
PLANNED FOR PERFORMANCE

- Powered by Cat Diesel Engines.
- All usable blade positions available in seconds.
- 100% Caterpillar-built.
- Constant-mesh transmission.
- Trouble-free mechanical controls.
- Unitized, high-strength box-section frame.
- Full revolving circle.
- Three sizes—100 HP No. 12; 75 HP No. 12; 50 HP No. 212.

For top production at low cost per yard, Caterpillar track-type Tractors, teamed with Cat Scrapers, take over. This D8 is one of 11 Cat Diesel track-type Tractors owned by this contractor.

The D13000 powering this clamshell is one of four Cat Engines on this contractor's spread. You can PLAN *production with Cat Diesels, for they're honestly-rated—you get all the power you buy!*

CATERPILLAR PRODUCTS
FOR PLANNED PROFITS

- Caterpillar Diesel Engines, Electric Sets.
- Caterpillar Diesel track-type Tractors, wheeled Tractors.
- Cat Diesel Motor Graders.
- Caterpillar Scrapers, Bulldozers, Rippers, Shovels, Hydraulic and Cable Controls.

is on front and back of these pages...

Maudlin Construction Co. plans its production from this portable crusher around a Cat D337 Engine. The dragline is powered by another Caterpillar Diesel.

MORE PRODUCTION

WITH

CATERPILLAR PLANNED POWER!

...a service of your Cat Dealer!

Even skilled engineers can be confused in the field of horsepower, direct drives, cooling systems, production capacities and other engine data—that's why it's a good idea to enlist the aid of a specialist when you're powering production machinery.

Your Caterpillar Dealer has trained, experienced power engineers who can help you plan power that can push production. They can meet your power requirements exactly from the complete line of Cat Diesel Engines or Electric Sets; can custom-tailor the installation to your preferences in cooling systems, drives, clutches, starting systems, etc.

If you're planning the power for your machinery —new or old—call on us for assistance. There's no obligation, so do it today!

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CATERPILLAR DIESEL ENGINES • TRACTORS • MOTOR GRADERS • EARTHMOVING EQUIPMENT

COAL MINING

Vol. XXXI February, 1954 No. 2

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Published Monthly By

MODERN MINING PUBLISHING COMPANY

Publication Office—1118 Chestnut St., Erie, Pa.
Editorial Offices—4575 Country Club Drive, Pittsburgh, Pa., Phone Pl. 1-9411.
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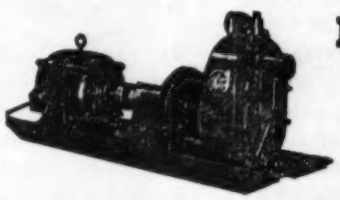

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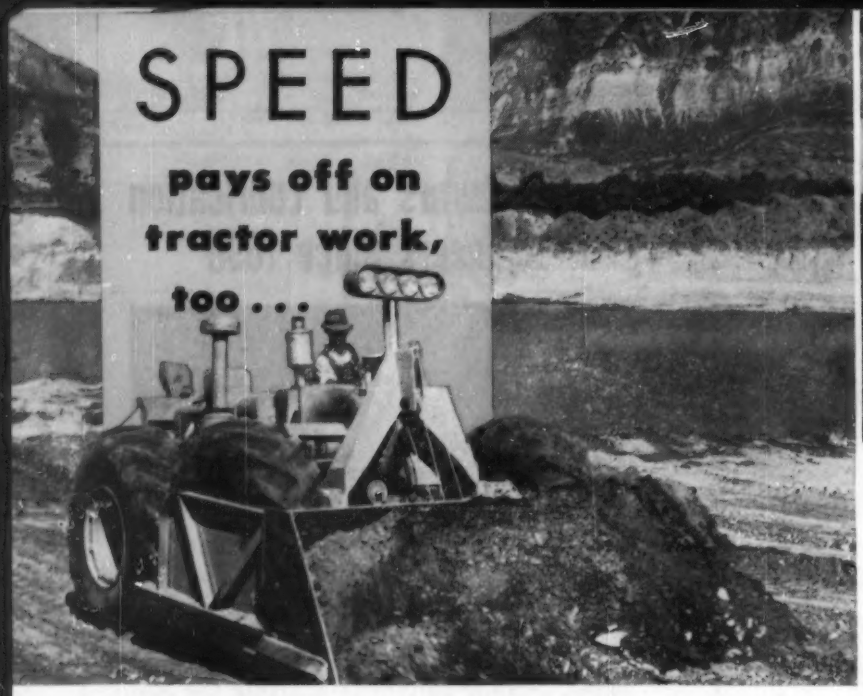

"Consolidation Coal" services 4 mines near Jenkins, Ky., with 2 Tournatractors. Units drive mine-to-mine at speeds to 19 mph. On clean-up work, rubber tires save an estimated 1" to 2" of coal that crawlers would grind to unrecoverable fines.

Feeding a hot-mix plant for Strong Co. of Springville, Utah, Tournatractor dozed 94.5 yds. hourly over 321' one-way push. On same job, 144 hp crawler-tractor moved only 81.2 yds. on short 175' push.

How 4 rubber-tired wheels beat 500 grinding crawler parts

Tournatractor, the 4-wheel-drive rubber-tired prime-mover, introduced by LeTourneau six years ago, will keep as much load rolling on push or pull as *any* crawler tractor. It will *double your speed* on 85% of your work.

On dozing, it usually averages 2 to 3 cycles to a crawler's one. On push-loading, it lets you add an extra scraper for every 3 or 4 served by a crawler-pusher. When pulling scrapers, job reports show production of 2 to 3 times the crawler's station yards. Traveling job-to-job at 19 mph, Tournatractor eliminates delay and expense of truck-trailer haul . . . drives over pavement, blacktop, across tracks or curbs, or cross country.

You can get a Tournatractor for approximately the same price as a crawler-tractor.

By switching to this modern lowest-net-cost-per-yard type tractor, you will operate with a lower maintenance cost, increase your profits materially with extra pay yards per hour, and insure your competitive position. Since you stand to gain so much more for the same initial cost, why not take time to investigate further?

In Missouri, Tournatractor helps combat stockpile fire by spreading burning coal. Continued travel of big rubber-tire compacts coal, reduces danger of farther spontaneous combustion.

Tournatractor pulls "gyp" wagon, cleans around two 2½-yd. shovels, dozes ore into 8 grizzlies, stockpiles rock for this Arkansas bauxite mine.

TOURNATRACTOR SPECIFICATIONS

DIESEL POWER ..... 186 hp

SPEEDS in mph @ 2000 RPM

1st gear, fwd	1.61
2nd gear, fwd	3.69
3rd gear, fwd	8.38
4th gear, fwd	19.23
Low Reverse	3.53
High Reverse	8.09

TRANSMISSION ..... Tournamatic, (Constant-mesh, Multiple-Disc Clutches, Air-Actuated)

TIRES ..... 4 (18.00 x 25) 16 Ply GG*

STEERING
Two wheels on each side controlled by air-actuated multiple-disc clutches and brakes.

GAUGE ..... 8'2"

WHEELBASE ..... 5'11½"

GROUND CLEARANCE ..... 16½"

OVERALL MEASUREMENTS

Length	17'
Width	10'1"

ATTACHMENTS (Optional)
Angledozer, Bulldozer, Bumper Bar, Carryall Scraper, Push Plate, Root Rake, Side Boom Crane, 67,000-lb. Winch, Snow Plow

PRICE
About the same as crawler tractors of comparable size.
*Other sizes and types optional

Tournapull, Tournamatic, Angledozer, Carryall—Trademark Reg. U.S. Pat. Off. Tournatractor, Tournaskidder—Trademark T-452-M-b

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Lancaster Avenue at 54th Street, PHILADELPHIA 31, PA.

Water St., NEW PHILADELPHIA, PENNSYLVANIA (Pottsville Region)

5105 Paxton St. HARRISBURG, PA.

Do You Know?

● America's creative genius seems to be in good health, the Patent Office observed after issuing its first group of patents for 1954.

C. L. Roberts, patents application officer, said a total of 105,303 "new" patent applications either have been acted upon by patent examiners or are awaiting the attention of the 70 specialists. This compares with a figure of 97,747 reported at the beginning of 1953.

This figure, however, does not include patents that have been referred back to attorneys for amendments that have not as yet been received. Neither does it include the thousands of patents still in the mill from past years.

Patent Examiner J. L. Brewrink leads the list for 1954 with a total of 3,675 applications awaiting his initial or further attention. Mr. Brewrink examines patents covering guns and torpedoes, explosives, radar and electrical directional and distance instruments.

Examiner H. Surle comes in second with a waiting list of at least 2,148 patents dealing with natural resins, proteins, amide chemical compounds and general organic processes.

Examiner E. J. Drummond follows closely with a total of 2,141 applications for patents on various types of metallic, paper, wooden, glass and special receptacles.

"Low" man in the list of 70 examiners is E. L. Morse who has 919 applications dealing with gadgets that push and pull, wind and reel, keep time or govern other machines by time machines, or inventions that apply to railway mail delivery.

The Patent Office now has given protection to 2,665,420 mechanical, chemical and electrical inventions since it issued its first patent "Making Pot and Pearl Ashes" to Samuel Hopkins on July 31, 1790.

Although only three patents were issued that first year, the business of protecting ideas with patents caught on quickly and soon America's genius was turning out inventions at a furious pace for the times.

From 1790 to 1873, inventions patented included: Brooms, cotton gins, bedsteads, animal traps, corn shellers, school desks and seats, door locks, fences, foot warmers, gas lights, gold washing devices, inkstands, horseshoes, hoopskirts, patent medicines, looms, liniments, pantaloons, oil cans, printing presses, rotary steam engines, spectacles, sewing machines, street-sweeping machines, railway car spittoons, the telegraph, water wheels and washing machines.

● Electric railroads may return to a prominent spot in some parts of the country despite the present trend toward diesel engines.

H. F. Brown and R. L. Kimball of Gibbs & Hill, a firm of architects, told the American Institute of Electrical Engineers here today that lower operating costs may put more of the big electric motors on the rails in the future.

Specifically, they cited lower maintenance costs, terminal costs, power costs and fixed charges as the economic factors of an electric system that can compete with a diesel installation.

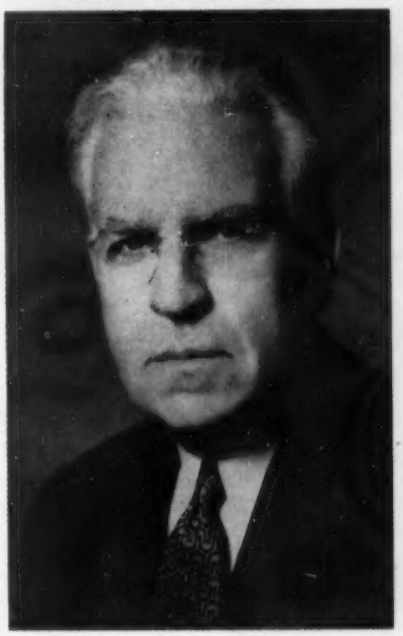
"It is believed that when the differences in all these costs are fully determined, electrification will again be applied to certain parts of the American railroads," they predicted.

F. D. Brown, Westinghouse Electric Corporation engineer, pointed out that the costs of diesel and modern electrification are so close that an adverse change in the cost and supply of oil might start a trend back to electricity.

Here and There in the Coal Industry

● Board of Directors of The Elk Horn Coal Corp. has announced the election of W. W. Goldsmith as president to succeed J. F. Caulfield, who has resigned and is retiring from business. Mr. Goldsmith has been the primary receiver, along with the late Howard N. Eavenson, for the company's properties, as well as an ancillary receiver operating the properties in Kentucky, since 1940.

● The Erskine Ramsey Gold Medal, highest engineering recognition in the coal mining industry,



L. C. Campbell

has been presented to L. C. Campbell, president of NCA and vice president, Eastern Gas and Fuel Associates, Pittsburgh, by the American Institute of Mining and Metallurgical Engineers at its annual meeting in New York City on Feb. 17. Mr. Campbell will be cited for his contributions to the safety and welfare of employees and to the advancement of mechanical mining.

● William C. McIntosh, VPI graduate previously employed in the institutional engineering section of the Commonwealth of Virginia, has been appointed service engineer for the Southern Sales Division of Pocahontas Fuel Co. Announcement by Harry Bowen, Southern Sales Manager.

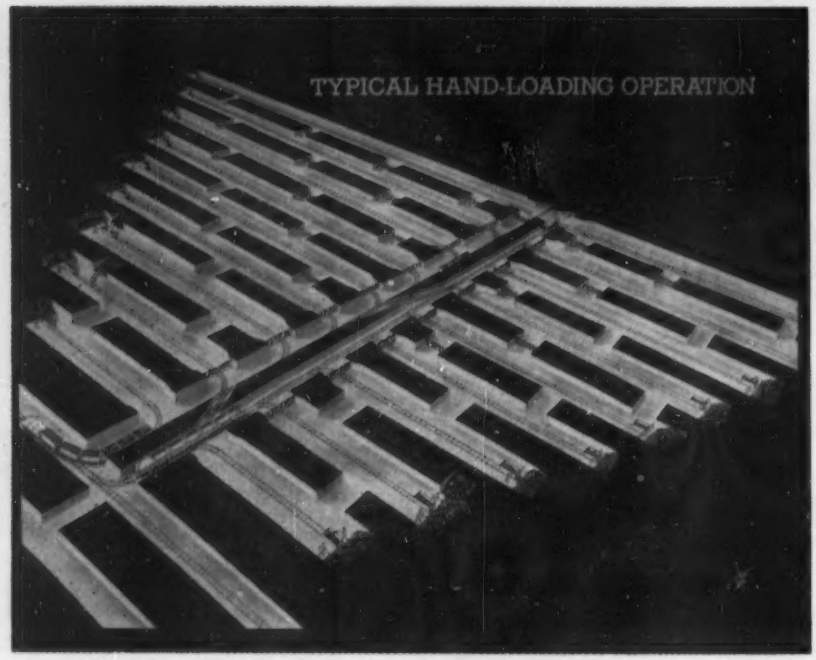
● Edwin R. Price, manager of Inland Steel Company's coal properties at Wheelwright, Ky., since 1930, will retire at the end of January. He will be succeeded by John T. Parker, who as an Inland employee since 1926 has served as mine engineer, mine superintendent. and general superintendent. Mr. and Mrs. Price will make their home in Frederick, Md. He will continue as a member of the Federal Coal Mine Safety Board of Review.

● T. R. Workman, at his request, has retired as vice president for operations of West Virginia Coal and Coke Corp., and has assumed the duties of public relations director, a newly-created position. Henry W. Bauer, associated with the operating department for many years, has been appointed district manager of the company's operations in Logan County. Announcement made by President T. G. Gerow.

● The next National First Aid and Mine Rescue Contest will be held in 1955, according to the decision of the General Committee decided at a recent meeting. Harry Grandy, Jr., director of NCA's Safety Dept., is a member of the committee.

● Neil E. Salsich, 70, vice president and director of The Jeffrey Mfg. Co., Columbus, Ohio, died suddenly February 2 in Bethlehem, Pa., where he was to have met with Bethlehem Steel officials during the day.

Mr. Salsich joined Jeffrey in 1931 and has been vice president and director of the company since. Previous to 1931, he was associated for 28 years with Penna Steel Co., Steelton, Pa., and Bethlehem Steel Co.



This plan of mining produced 300 tons per day employing 50 men.

Review of Progress Toward Coal Mine Automation to Date

Drawn by its own inward strength, morally and physically, the world is inching forward. It is of the greatest importance to modern man that he understand the modern world. He must have knowledge enough about the world to make the right decisions. A new type of thinking is needed to supplant the old ways of thinking.

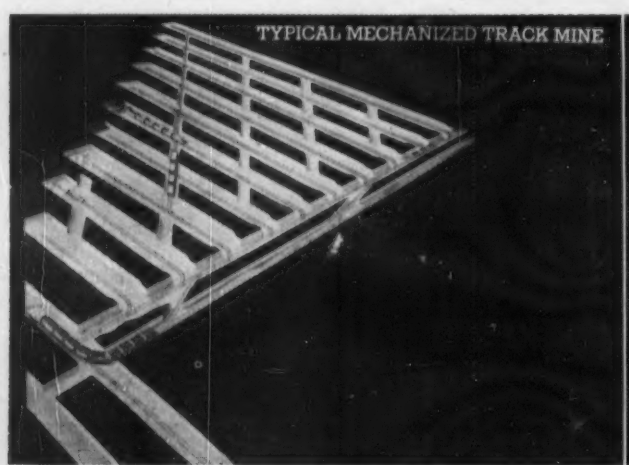
Man has never before discovered so much about which he knows so little. Several years ago the uppermost question in the coal industry was "does the present coal mining man have the ability to do the things that are necessary to maintain the industry's present standing." Today there are several budding indications that he will, after a time.

Technological progress in the coal industry is in its infancy and the industry is a typical challenge which the present youthfull managing personnel is destined to answer.

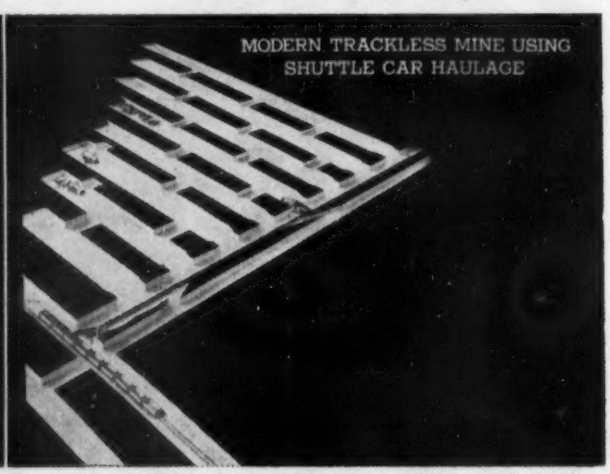
The coal mining section of the American Institute of Mining and Mechanical Engineers held an off-the-record meeting in Pittsburgh last month at which Mr. W. L. Werly, Vice President of the Joy Manufacturing Company gave an extemporanious talk about conditions leading to full automatic mining of coal.

Mr. Werly outlined by drawings the steps in mining methods from handing in which it took 50 men working 50 different places to produce 300 tons of coal per shift. A drawing in the next step of im-

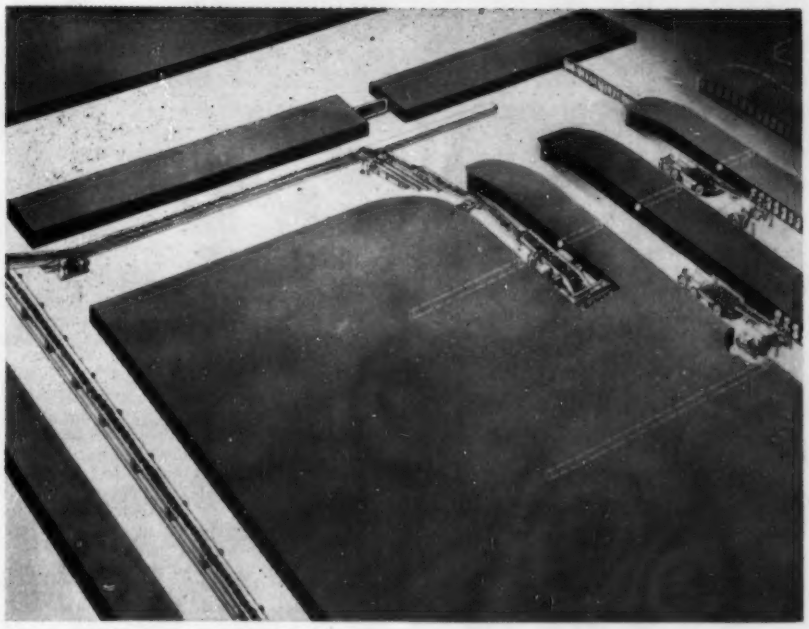
W. L. Werly



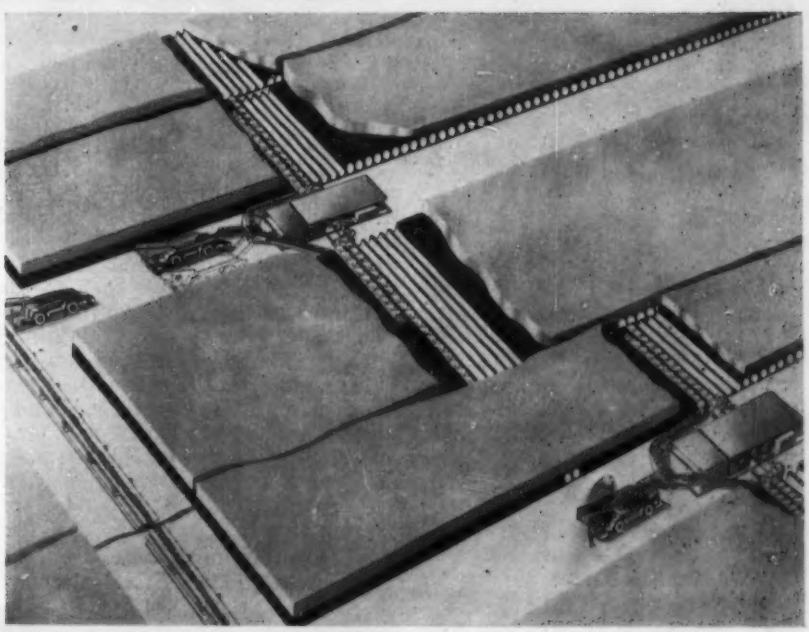
This plan, using only loading machines, produced 300 tons per day, employing 30 men



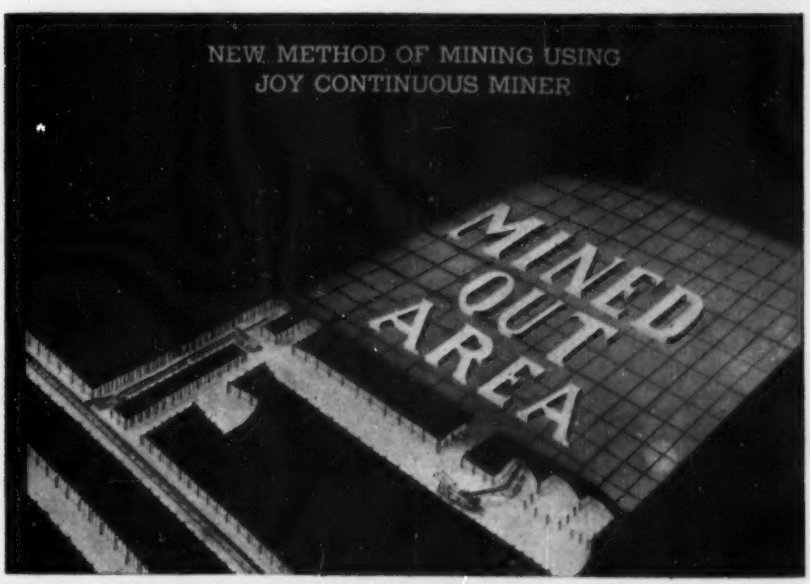
This plan of mining, using loading machines and shuttle cars, produced 300 tons per day, employing 20 men.



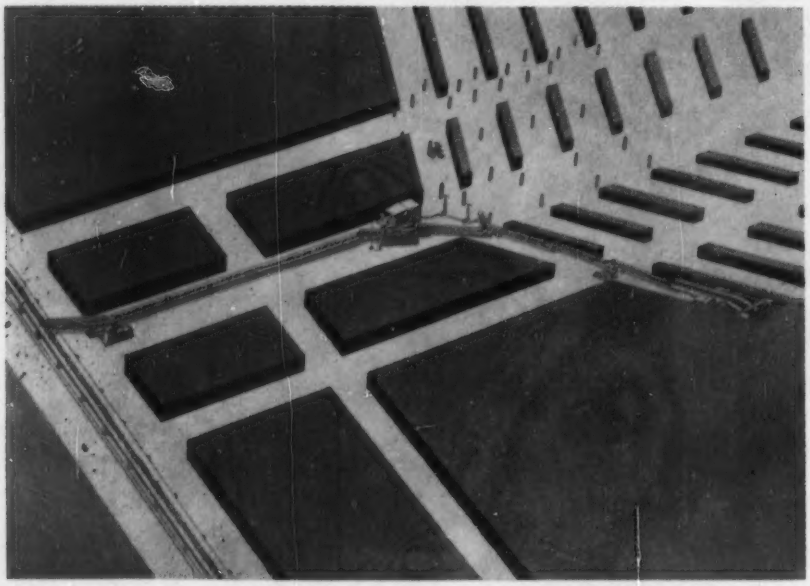
This plan employs augers in room and pillars, on the retreat, feeding coal onto entry and mother belts.



This plan employs augers in solid coal, using shuttle cars for hauling to entry belt. The plan has been worked out to get coal under extremely bad roof.



A plan for full retreat mining, using Joy Continuous miner and shuttle car.



Suggested plan for retreat mining automatically where longwall mining cannot be employed, using entry and mother belts.

provement showed the use of mechanical loading machines in which it took 30 men working 30 places to produce 300 tons. The third drawing showed how the use of shuttle cars along with the mechanical loading machines produced 300 tons per shift with only 20 men.

Drawings were shown of methods of mining with underground auger in room and pillar and in solid work. The use of augers in solid coal was developed principally to get coal under bad roof which has always been lost in the old methods of mining.

Another drawing showed full retreat mining, using the Joy continuous mining machine loading into shuttle cars for loading onto belt conveyor. With this or a similar method of the use of the continuous miner, 300 tons can easily be produced by 5 men.

At present, in minds of many of todays coal mining officials it is questionable if mechanization can be carried much beyond the present last advancement. The reason for such thinking being monetary outlay may exceed returns. The trouble with that kind of thinking is in trying to tie in entirely new ideas with the old. Someone who cannot see beyond his present mining conditions always manages to swing a discussion about Atomation back to the old tried-and-found-wanting methods and there the new, automatic mining idea is left bogged down in arguments that deal with room and pillar mining and roof conditions. It may be true that room and pillar conditions are what all mining men have and that they must be dealt with. But that does not mean that there cannot be full automatic mining. Not enough men with the required intestinal fortitude have as yet come to the fore and said "forget the old regardless of what it costs, let's apply the new". There is no way of beating back progress. If the men now responsible for the successful operation of our coal mines will not or cannot swing to automation, they will be replaced by men who can and will.

● Thomas J. Hunter, veteran newspaperman, has been appointed manager of the newly created Sales Promotion Department at the Lima Works, Baldwin-Lima-Hamilton Corporation, Lima, Ohio.

In the position, Mr. Hunter will handle trade publication and newspaper publicity, brochures and sales aid material, edit a semimonthly field paper and direct activities of the company's new sales training school.

Mr. Hunter resigned as business editor of The Lima News in October 1953 to join the company as sales promotion representative. Ten of his 20 years in the newspaper business were spent in display advertising work.

● Man will have to depend upon energy in sunlight for fuel in the year 2114, the American Society of Heating and Ventilating Engineers was told.

Profs. R. C. Jordan and J. L. Threlke, both of the University of Minnesota, estimated that existing coal and oil deposits will be consumed in about 160 years.

"Since man, in the last 53 years, has consumed more than 85% of all the fossil fuels used, a new inexhaustible source of energy like the sun is necessary," they reported.

The professors suggested that solar energy can be obtained during all days on the earth's surface, including cloudy days. Solar heat-gathering systems are affected by the earth's position relative to the sun, solar constants and depletion of radiation by the atmosphere.

The two experts worked out the details for a model house in Lincoln, Neb., where winters are relatively severe. They determined that a house designed for a heat load of 62,000 BTU's per hour can be heated during variable winters by a system equipped with a 700-square foot solar-energy collector, a four-horsepower heat pump and a heat storage "sink" using 400 cubic feet of a heat-of-fusion material.

In many localities, solar energy heat pump systems would result in lower heating costs than those of conventional fuel-fired systems. No serious architectural problems exist in providing for solar energy storage, the men reported.

● An electronic "watchman" has been perfected that acts in one-sixtieth of a second to kill power lines when trouble develops.

The device has been successfully tested in the field on a 43-mile span of the Appalachian Electric Power Company's 132,000-volt transmission line linking Roanoke and Lynchburg, Va.

H. C. Barnes of the American Gas and Electric Service Corporation, and L. F. Kennedy of the General Electric Company, told the American Institute of Electrical Engineers here today that the electronic device maintains its accuracy and speed throughout the life of a vacuum tube, the heart of the "watchman."

Soon to be installed on the American Gas and Electric Company's 330,000-volt system in the Ohio Valley, the electronic relay was hailed as a "significant forward step" in transmission line engineering.

Like electric irons, toasters and frayed lamp cords, transmission lines sometimes become short-circuited. To prevent damage to the line, the land it crosses and the power stations feeding it, engineers "fuse" the line with high speed relays. When trouble develops, these relays trip giant circuit breakers to kill the line. Some of the fastest-acting relays have required an elapse of several cycles of the 60-cycle current before killing the line. The new electronic relay does the job in less than 0.016 second.

● Soil moisture gage is pushed into the ground to the root depth of the crop growing on the land. It measures the amount of soil moisture, indicating on a dial-type gage when irrigation is needed. Made in lengths ranging from six to 48 inches, the device is accurate to within three percent. Its plastic moisture-finding probe is made of tough butyrate.

Do You Have the Proper Tools for Battery Maintenance and Repair?

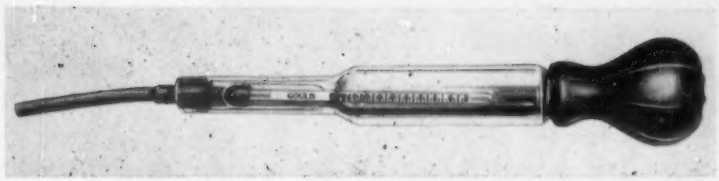


Figure 1 — A hydrometer is an essential instrument in battery maintenance.

Users of storage batteries for fork-lift trucks, industrial tractors, powerized hand trucks and other battery-powered equipment can add substantially to battery life and improve battery performance by having the correct assortment of standard and special instruments, supplies and tools on hand in the battery maintenance and repair shop.

First and foremost, service engineers of Gould-National Batteries, Inc., have found that the battery shop should have an accurate hydrometer (Fig. 1). Hydrometer readings indicate the state of charge of the cells. Properly recorded hydrometer readings, taken over the life of the battery, will tell the condition of individual cells and give a warning of sulphation and other conditions, in time for corrective steps to be taken.

A thermometer is another "must." Specific gravity readings must be corrected to reflect temperature changes. A thermometer will also indicate undesirable temperature increases during charging.

A voltmeter is recommended for checking the voltage of the battery as a whole, and of individual cells, to detect malfunctions (Fig. 2).

For long life, it is important to keep batteries clean. A well-equipped shop should, therefore, have wire brushes to remove corrosion and dirt from terminals, connectors and other parts. A sharp knife is useful for scraping off accumulated, encrusted corrosion. Rags or waste should be available for wiping up accidentally spilled water, acid or electrolyte. A quantity of mineral grease or vaseline should be on hand to coat terminals, etc., after cleaning. Soda should be among battery room supplies to neutralize spilled acid.

Even in relatively small battery shops, it is sometimes necessary to remove a damaged cell from a

Fig. 4 — The new cell puller should be used to lift cells from the battery for repairs and examination.

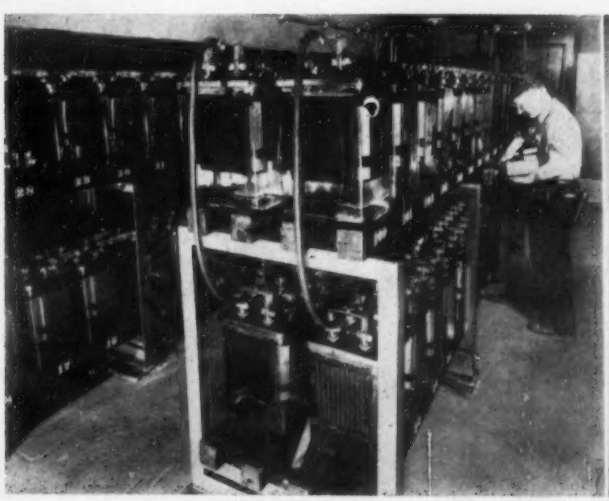


Fig. 2—A voltmeter is recommended for checking batteries as a whole and for checking individual cells.

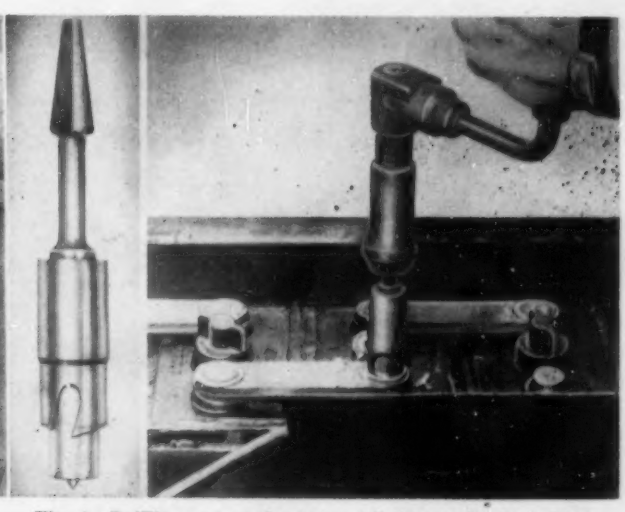


Fig. 3—Drilling an annular hole with the special tool shown at left. This tool permits cell connectors and jar covers to be removed without disturbing the terminal posts.

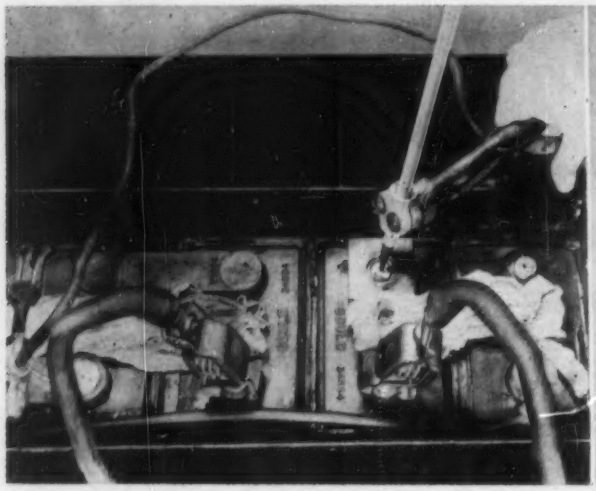


Fig. 5—Lead burning equipment is needed to restore intercell connectors and build up posts.

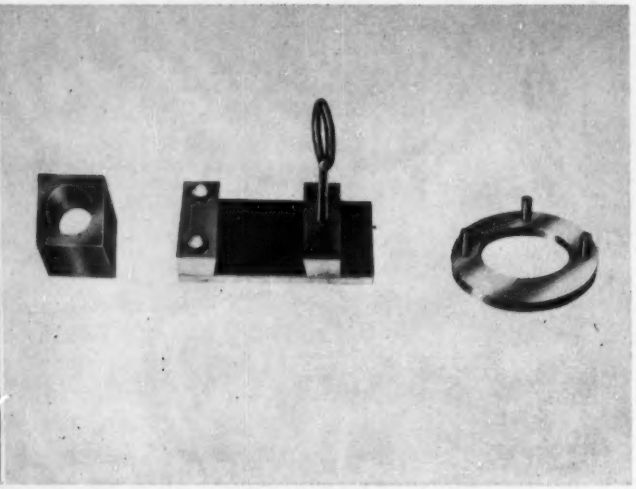


Fig. 6—Various molds such as these shown above are used with lead burning equipment to build up lead posts and connectors in reassembling a repaired cell into a battery.

battery and replace it. For this job, a special drill is required to remove the intercell connectors from the damaged cell. This is shown in Figure 3. In some cases, a standard 15/16" drill can be used, drilling 3/8" into the post. On some batteries it is possible to use a metal saw to cut the connectors.

After the connectors are drilled or sawed and removed, a warm putty knife is needed to cut the sealing compound between the damaged cell and adjacent cells.

When the cell is free to be lifted out of the tray, two special cell pullers should be attached to the negative posts of the cell, a wooden or non-metal piece placed through the loops of the cell puller, and a rope attached to pull up manually or with a power hoist (Fig. 4).

The same tools are required to replace the damaged cell. In addition, lead burning equipment is needed to restore the intercell connectors. This may be an acetylene or carbon arc burner (Fig. 5). Several molds are needed for this job (Fig. 6). The posts must be built up using a special mold (Fig. 6 left). The posts must be burned or melted to form an integral part unit with the intercell connector. In cases where the connector has been cut by sawing, a special splicing mold should be used (Fig. 6 center) as in Figure 7 to rejoin the intercell connectors.

Sealing compound and equipment for heating and pouring should be part of the battery room equipment. This is used to reseal the replacement cell in the battery (Fig. 8).

Some larger battery shops are called upon to repair damaged batteries completely. Very little additional equipment is needed. Holding-down clips are useful to remove the element from a cell. A special L-shaped tool with lifting handle makes it easier to remove a cover.

A sturdy table with a wooden or non-metal top is useful in repairing cells and in the assembly of new separators.

If water from the public system is not suitable for batteries, a

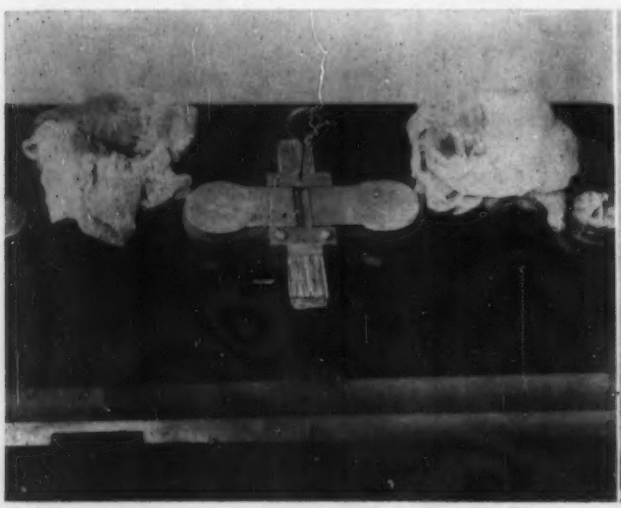


Fig. 7—Special mold shown in center of Figure 6 in place to rejoin connector by lead burning.

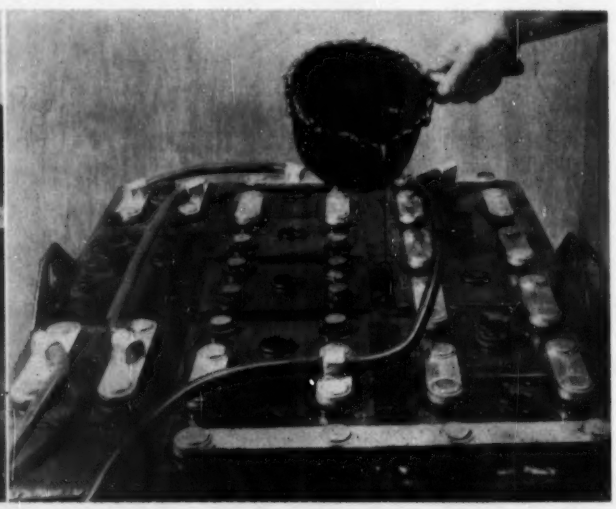


Fig. 8—Means for heating and pouring sealing compound should be part of batteryroom equipment to reseal cell covers and reseal the cell into the battery.

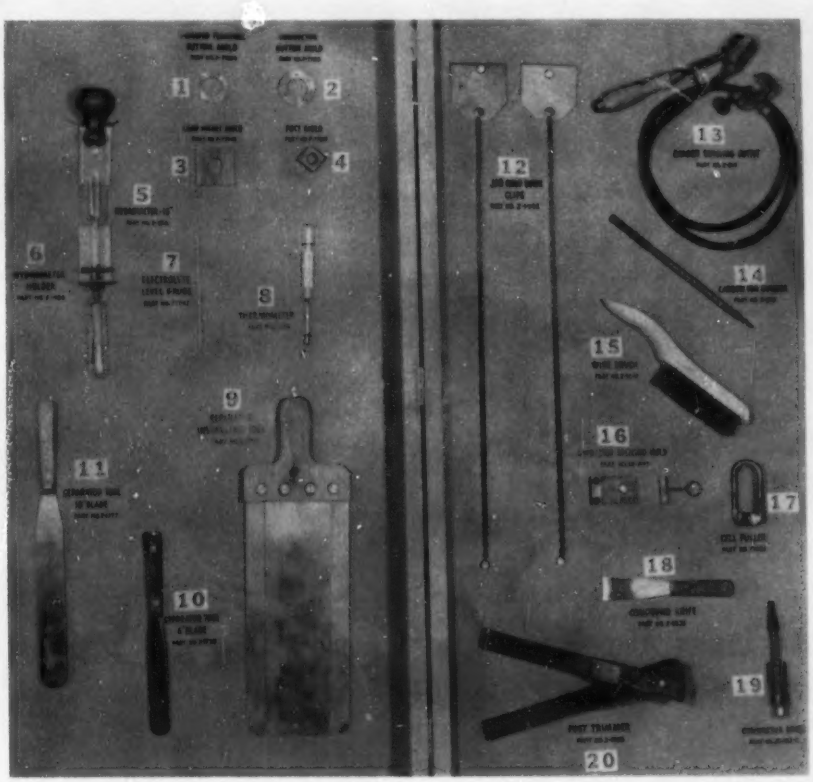
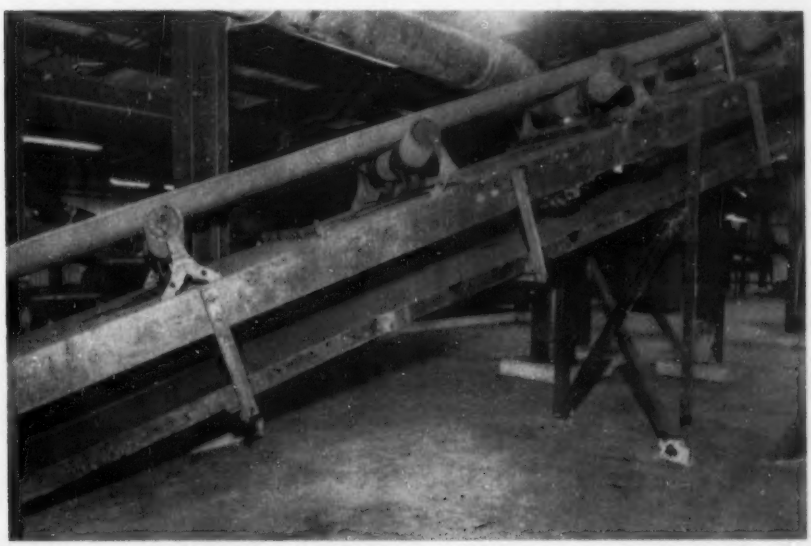


Figure 9 — Here is a complete set of suggested battery maintenance and repair tools.

supply of distilled water must be on hand in containers convenient for dispensing the water.

A supply of battery grade sulphuric acid is advisable—especially when repaired cells must be refilled with electrolyte. Suitable mixing vessels and charts will prevent damage to personnel and batteries.



Expected to achieve lower operating costs by reducing maintenance expense, is this new wrought iron catch pan serving the conveyor belt in the coal cleaning plant at Consolidation Coal Company (W. Va.), Williams Mine, Worthington, West Virginia. Fairmont Machinery Co., designer and contractor, specified 3/16-inch wrought iron plate to check the corrosive action generated by the combination of moisture and sulphur which is removed by the washing process and thus provides for extended service life of the catch pan.

● Henry H. Howard has been elected a Vice President of Caterpillar Tractor Co., it is announced by President Louis B. Neumiller.

In his new position, Mr. Howard's principal responsibility will be the administration of the Company's recently created Engine Division, Mr. Neumiller said.

Mr. Howard has been with the Company 27 years, most of which have been spent in the Sales Management Field. He served as director of Sales from 1949 to August 1, 1953, when he was named manager of the Engine Division.

Henry H. Howard

While maintaining his administrative responsibilities at Caterpillar, Mr. Howard has twice served the nation in time of war. He was consultant to the Tank and Combat Vehicle Division of the U. S. Ordnance Department from February, 1942, to July, 1943, and served for 13 months, beginning in December, 1950, as consultant to the Department of the Army, G-4.

A licensed pilot, Mr. Howard is deeply interested in private and commercial aviation. He is a former chairman of the Greater Peoria Airport Authority. He is also active in the American Ordnance Association.

A graduate of the University of California, Mr. Howard joined Caterpillar in May, 1926, at San Leandro. He was an Export Representative in Australasia from 1928 to 1931, and then worked four years in the Merchandise Department and as assistant to the Vice President in charge of Sales.

In 1935, he was named manager of the Governmental Sales Division and, from 1937 to 1942, was manager of the Engine Sales Department. He was General Sales Manager from 1943 to 1949.

Help for Mine Operators on the cost sheet... and on the job

In the past 15 to 20 years, the mining industry has kept stripping and output costs down in spite of rising labor and material costs. To do it, mine operators have pioneered new earth-moving techniques that have put constantly increasing demands on machinery. That's why in today's tough competitive era, mining requires modern, versatile equipment that enables the mine operator to increase output per man-hour and work at a profit.

In an effort to cooperate fully to meet these demands, Allis-Chalmers has for years geared its progress to that of the mine operator himself... now offers him completely new designs like the HD-15... a machine that takes advantage of even the most recent developments in tractor application.

The design of the HD-15 also makes full use of new metals, new oils and greases, and the latest manufacturing processes. Existing models were not allowed to restrict Allis-Chalmers engineers . . . so they worked right from the ground up, matching part to part, assembly to assembly, and the entire tractor to its Allied equipment. As a result, the HD-15 offers new standards in ease of operation and service, as well as long-life performance. With outstanding balance characteristics, it handles both mounted and drawn equipment well, provides maximum flexibility for the wide variety of jobs.

We invite you to talk with your nearby Allis-Chalmers dealer to compare values . . . see for yourself how the HD-15 can be a big factor in helping you to increase output per man and hold costs in line.

ALLIS-CHALMERS
TRACTOR DIVISION • MILWAUKEE 1, U. S. A.

HD-15
109 drawbar hp.
27,850 lb.
Six speeds forward to 5.8 mph.
Three reverse speeds to 4.5 mph.

Constant progress in earth-moving methods has been matched by such design advances as this HD-15 and its engine-mounted dozer . . . which were engineered and tested as a unit, right from the start.

This HD-15 Tractor Shovel is a tool which introduced a new era of tractor usefulness. This versatile machine moves from job to job easily and does traditional jobs in a better, faster way.

The improvements and refinements of really modern design take on new significance as demands on machinery grow. Extra yardage handled . . . or lubrication time saved means working more efficiently, more profitably.

Standing left to right: Blair, Watt, Kuenzel, McCracken, Hanlin, Hager, H. J. and Hager, J. W.
Seated at the table clockwise, beginning left end of table: Speare, Culworth, Walter, Zacher, Shotts, Woods, Stewart, Cooper, Dorenfeld, Nelson, Beamer and Cothern.

Meeting of Vocational Training and Education Committee, N.C.A., at University of Alabama, January 15 and 16, 1954

The meeting opened with a luncheon in University of Alabama Union Building. After the luncheon, Dr. O. C. Carmichael, President of University of Alabama made a most interesting address on, "The Broadening of Engineering Education in the United States." His remarks appealed to those who heard him, especially because of the convincing manner in which he advocated a broader training for engineers.

In the afternoon, the Committee, guests, Dean J. R. Cudworth of the College of Engineering, and faculty members met in the Conference Room of the College of Engineering where reports were given on the curricula by members of the faculty in mining engineering and closely associated subjects. Professor R. Q. Shotts described his courses in Fuel Analysis and Utilization. Professor A. C. Dorenfeld gave an account of his courses in Mineral Dressing and Coal Preparation. Professor J. W. Stewart, Head of the School of Mines, gave a rapid summary of the courses under his direction. Dr. E. F. Richards told about the Geology Service courses given students in mining. Professor W. J. Miller described the instruction in Electrical Engineering. Professor Herbert Kuenzel commented upon the instruction in Mechanical Engineering. Throughout the presentation of these reports, the members of the Committee and guests asked questions which were answered fully and lead to interesting observations.

The Vocational Committee of the National Coal Association meets at different accredited universities three times yearly. The latest meeting of this Committee was held at the University of Alabama.

In the evening, a dinner was held in the Alabama Union Building. Afterward, the first speaker was Dean J. H. Newman who gave a brief and absorbing account of the development of the University. H. D. Pallister, of the Alabama Geological Survey, presented a record of mining and geological education at the University with which he has been connected for many years.

On Saturday morning, January 16, the members of the Committee and the mining faculty made a tour of the School of Mines and then returned to the Conference Room where an extended discussion of the curriculum in mining engineering took place. All of those present participated in the discussion of the reports that had been made by the members of the faculty. It was generally agreed that the instruction was in good hands and that the equipment was adequate, but that the School of

Mines needed the building that has been designed and for which the site has been selected.

Consideration of the places of meeting in the future resulted in a program that will be arranged and announced at a later date.

The meeting was attended by the following:

Members of the Education Committee, National Coal Association

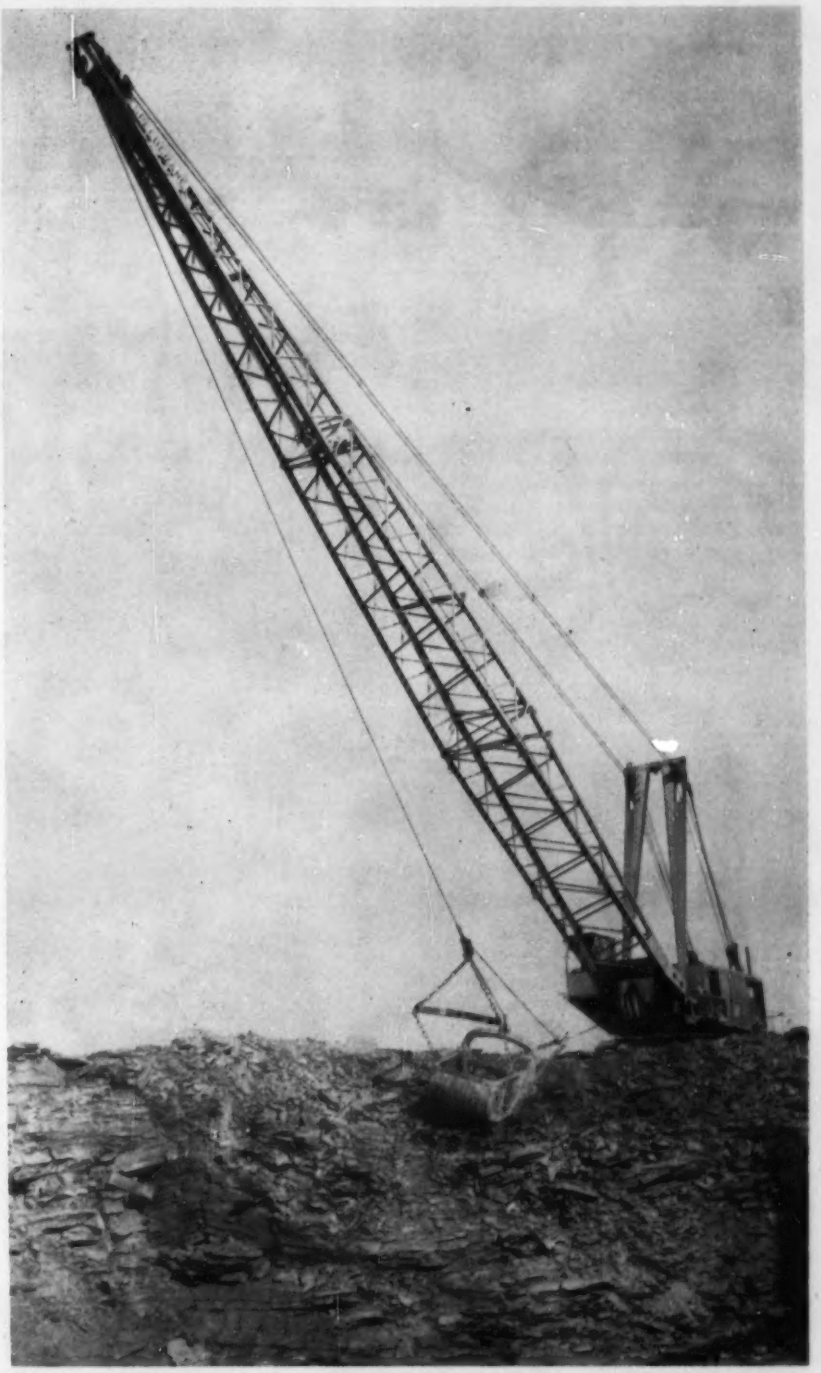
H. C. Woods, (Chairman) Chairman of the Board, Sahara Coal Company, Chicago, Illinois.
R. W. Beamer, Training Director, Rochester and Pittsburgh Coal Company, Indiana, Penna.
M. D. Cooper, Director, Mining Engineering Education, N. C. A., Pittsburgh, Penna.
L. I. Cothern, Director of Engineering, Jewell Ridge Coal Corporation, Tazewell, Virginia.
Dr. M. Edmund Speare, Educational Director, Bituminous Coal Institute, Washington, D. C.
H. C. Walter, Personnel Manager, The Lorain Coal and Dock Company, Columbus, Ohio.
F. R. Zachar, General Superintendent, Christopher Coal Company, Pursglove, W. Va.

Guests

A. J. Blair, Consulting Geologist, Birmingham, Alabama.
C. S. Blair, President, Black Diamond Coal Mining Company, Birmingham, Alabama.
T. J. Carpenter, Vice President, DeBardeleben Corporation, Holt, Alabama.
B. W. Gandrud, United States Bureau of Mines, University, Alabama.
J. W. Hager, General Superintendent, Woodward Iron Company, Woodward, Alabama.
H. J. Hager, Superintendent, Alabama By-Products Corp., Birmingham, Alabama.
J. G. Hanlin, Chief of Safety and Inspection, State of Alabama, Birmingham, Alabama.
B. H. McCracken, Manager, Southern Mines, Republic Steel Corporation, Birmingham, Alabama.
E. B. Nelson, General Superintendent, Coal Mines, T C and I Division, United States Steel Corporation, Fairfield, Alabama.
H. D. Pallister, Senior Geologist, Alabama State Geological Survey, University, Alabama.
Ralph D. Watt, Mining Engineer, Southern Mines, Republic Steel Corporation, Birmingham, Alabama.

Faculty Members
University of Alabama

Dr. O. C. Carmichael, Pres., University of Alabama.
Professor R. Q. Shotts.
Dean J. R. Cudworth, College of Engineering.
Professor A. C. Dorenfeld.
Professor J. W. Stewart, Head of the School of Mines.
Dr. E. F. Richards.
Professor W. J. Miller, Electrical Engineering.
Professor Herbert Kuensel, Mechanical Engineering.
Dean J. H. Newman.
H. D. Pallister, Alabama Geological Survey.



This dragline, powered by Caterpillar D-386 Diesel Engine, is stripping coal at the operation of James E. Hoffman, at Karthus, Clerfield County, Pennsylvania.

Beltroad takes rough terrain in stride. Foreground flight of belt climbs at an angle of 12 degrees. Auto in background must shift to low gear to climb the road alongside.

World's Largest Permanent Belt System Carries Strip Mined Coal

Coal obtained from a strip mine near Beverly, Ohio, now is riding over one of the world's longest permanent rubber conveyor belt systems.

The conveyor system is located on an isolated, wooded, rolling tract five miles northwest of this quiet southern Ohio community. Installed by The B. F. Goodrich Company, Akron, O., the rubber belt transports 800 tons of coal per hour over a four-and-one-half-mile twisting, up-hill-down-dale course from strip mine to coal storage area on the bank of the Muskingum River. To reach its destination, the beltroad bridges county roads, spans a state highway and crosses the 500-foot wide Muskingum.

Coal carried by the conveyor system serves as the source of fuel for The Ohio Power Company's new 400,000-kilowatt Muskingum River Plant, located on a 108-acre site on the west side of the river near Beverly. Ohio Power now has substantial coal reserves which can feed its new conveyor system for a number of years.

The entire conveyor system is composed of 14 flights, or sections, of rubber conveyor belting, ranging in length from 500 feet to 2,964 feet, pulley to pulley distance. The belts, all products of B. F. Goodrich, are 36 inches wide and travel at a speed of 600 feet a minute. Highest incline angle traversed is 12 degrees; greatest decline is 12 degrees. Transfer points located

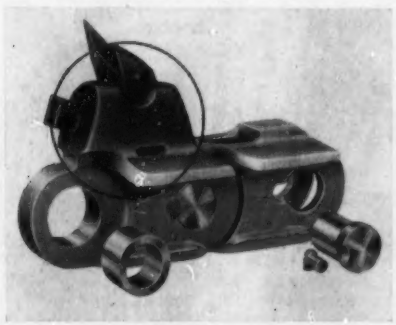
Here the beltroad bridges a country road and descends to the rolling country side below. From this point astride what was once a cornfield, the beltroad has one and one-half miles more to go before reaching the Muskingum River.

where one belt flight ends and another begins automatically cause the coal to discharge from one belt to another.

As the coal is mined, it is loaded by electric shovels into Euclids, which transport it to a preparation plant, where the coal is crushed and washed. Emerging from this process, the crushed coal is ready for its roller-coaster journey to the river stockpiling area.

The 14 conveyor drive motors are capable of producing a total of 1,435 HP. To install the 48,000 feet of rubber belting needed for the beltroad, 50 rolls of belting, weighing up to four and one-half tons each, were hauled to the site by motor freight from the B. F. Goodrich Company's Akron plant. A portable electric vulcanizer, weighing more than a ton, is used to make the vulcanized splices which make the belts endless.

● Streamlining has made drop forging possible for this coal cutter chain part formerly thought impossible to produce except by machining an alloy steel casting. It is the bit carrying body of a cutting chain and is securely welded to links. Now all wearing parts of this particular chain are drop forged, an achievement the manufacturer has been striving for to give greater strength, longer chain life, better cutting performance.

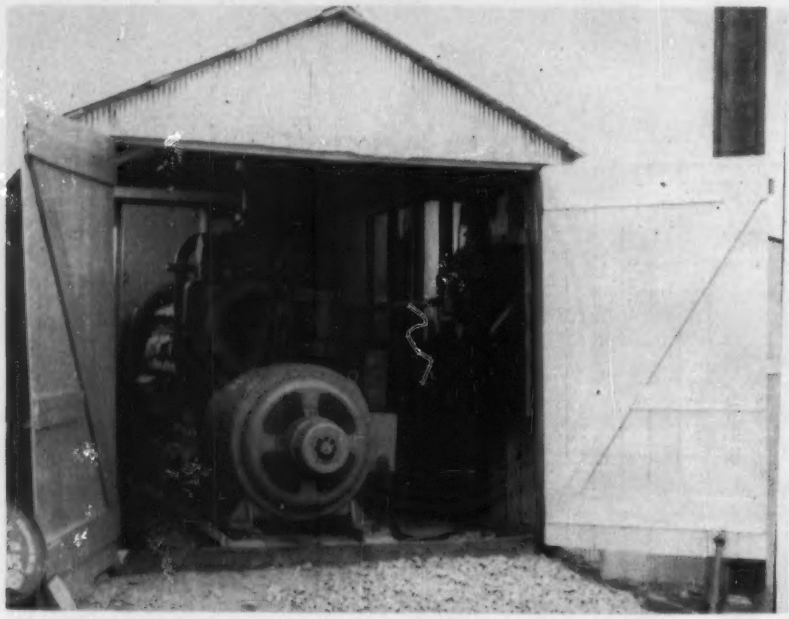


The BOWDIL COMPANY, Canton, Ohio, who make and market the chain to coal mines internationally, also are the originators of the double pointed "throwaway" bit clamped in the holder illustrated. Diversity of the company is evidencing itself through recent accomplishments in complete design, engineering and custom-building of machinery for a wide range of uses such as equipment for putting waxed paper to foil, and just completed—the entire building of a continuous cutting machine for steel tubes as they come from the mill.

Caterpillar Tractor Co. President Louis B. Neumiller, left, and Executive Vice President H. S. Eberhard unveil a large medallion at Peoria, Ill. This medallion represents the theme for a commemorative program Caterpillar will conduct in 1954 to celebrate the 50th anniversary of the world's practical track-type tractor. The Holt Manufacturing Company, one of Caterpillar's parent companies, successfully tested the first practical crawler on Nov. 24, 1904 in Stockton, Calif. About this same time the trademark "Caterpillar" was originated by the Holt company.

Caterpillar Diesel D8 Tractor equipped with No. 8U Bulldozer is working on coal stripping operations near Karthaus, Pennsylvania.

Triple S Mines located southeast of Augusta, Illinois. A Caterpillar D397 Diesel Electric Set furnishes power for coal mining operations.



Caterpillar D397 Diesel Electric Set furnishes power for coal mining operations at the Triple S Mine located southeast of Augusta, Illinois.

The new D8, recently introduced by Caterpillar Tractor Co., is described as "Boss of the Crawlers." The new D8 has several improved engineering and design features, including the oil clutch, increased speeds and 150 horsepower at the drawbar to meet the constantly increasing power requirements of today's big jobs. Significantly, the new and more powerful crawler is introduced during Caterpillar's 50th annievrsary year in the crawler tractor manufacturing industry.

● The Osgood Company of nounces that, effective January 4, 1954, the third step in a corporate Marion, Ohio, manufacturer of power cranes and excavators, anreorganization program started three years ago will be accomplished by its purchase of all the capital stock of The General Excavator Co., Marion, Ohio. Ohio. This move toward consolidation began in October, 1950 by combining The Osgood Company and The General Excavator Co. Sales Divisions, for marketing their products under the names Osgood-General.

During 1952, the second step took place with unification of field-service operations, again under the name OOsgood-General, although separate service headquarters were maintained in Marion. Corporate structure of The Osgood Company now includes as wholly owned subsidiaries both the Commercial Steel Casting Co. and The General Excavator Co.

Mr. Edgar W. Barnhart, formerly Vice-President and General Manager of The General Excavating Co., has been elected Vice-President and Secretary of The Osgood Company, whose officers are:

Robert C. Owens, President
Ben T. Wiant, Vice-President and Treasurer
Edgar W. Barnhart, Vice-President and Secretary
John F. Lacey, Vice-President for Foundry Operations

● Clues that point to slowing of productivity among our older workers are given editorially by the Journal of the American Medical Association here.

A fixed retirement age, it is pointed out, is "unprofitable for the employer, frustrating for the employed and eventually disastrous to the national economy."

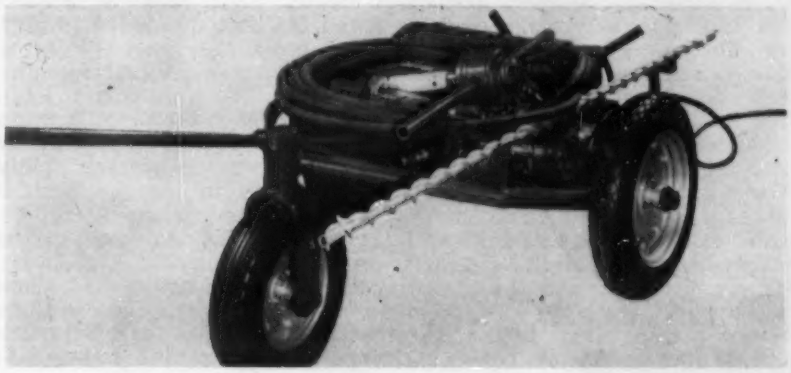
Calling on firms to take as much pains over the problem of whom they will retire as they do in choosing whom to hire, the editorial gives the following ways to recognize when productivity of older workers starts to decline:

"Day-to-day observation by the employee's immediate supervisor is the commonest. Other clues are increasing absenteeism, a worker himself admitting that he is unable to keep up and requesting a modification of his work schedule, individual output records, reports from other employees, reports from the nurse that an employee has become a frequent visitor to the dispensary, and the finding of warning signs on a periodic physical examination."

● Safety glasses are quickly adjusted to fit each workman-wearer. The plastic temples slip out to any desired length and wil stay at the selected position. Many-purpose plastic lenses are designed to snap into the frames.

● Schroeder Brothers, Pittsburgh, announce a new Tricycle Hydraulic Power Unit which is light weight, rugged and handily mobile. It has been designed for use with the Schroeder Hydraulic Coal Drill. This highly maneuverable unit weighs in at 615 pounds complete with oil, drill, chuck and hoses and is ideal for hand propelling in all but the worst bottoms. Less than 22" high and approximately 60" long—it has a bottom clearance of 6½" and a tread width of 36".

Embodying a strikingly simple hydraulic system, a new tank designed for rapid cooling and standard electrical equipment and other components which are light weight and easily maintained, this Tricycle Power Unit, with the Schroeder Drill, provide a complete drilling unit for face operation.



● In one of the largest iron mines in the world where conveyor belts are miles long (one is 3 miles long) and cost millions of dollars, the repairing of these belts is a constantly recurring job. In fact, one mine has built a special building expressly for use in renewing conveyor belt surfaces.

Resourceful engineers responsible for these operations hit upon a new and ingenious method for holding pressure on the vulcanizing platen. They utilize a 30 Ton Center-Hole Hydraulic Ram made by the Owatonna Tool Co., Owatonna, Minnesota at each corner of the platen to maintain even pressure until the vulcanizing operation is completed. Two vulcanizing platens with four rams to each platen are in operation throughout the winter season when actual mining operations are suspended. The OTC Rams are hooked up in series to one pump in order that equal pressure may be obtained simultaneously at each Ram.

Until these Rams were installed vulcanizing costs were approximately $3.90 per foot. Installation of this new system reduced these costs to $1.80 per foot or one-half the former cost.

For complete information on Hydraulic Rams, ask your OTC Distributor or write to Owatonna Tool Company, Owatonna, Minnesota.

RIDGE EQUIPMENT COMPANY

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COAL PREPARATION PLANT

- **Portable Coal Preparation Plants** with variable volume feeder, balanced screen and picking table and single roll crusher with quick adjustment of product size; anti-friction bearings and pillow blocks used throughout, from **$2850.00**
- **Tandem Sizing Screens** from **1500.00**
- **Single Roll Coal Crushers** from **580.00**
- **Single and Double Deck Vibrator Screens** from **360.00**
- Also belt and chain conveyors, steel hoppers and bins; complete structures designed, fabricated and erected.

● As a further development of the principles successfully used in the 4-wheel drive Euclid Twin-Power Scraper, the Euclid Division of General Motors Corporation has recently placed two new experimental 4-wheel drive scrapers on construction projects in North Carolina.

The scrapers are rated at 18 cubic yards struck measure. All four wheels are driven by a 300 HP diesel engine mounted behind the scraper bowl. This engine power is transmitted to the rear axle, and forward to the front axle through a driveshaft and universal joints mounted along one side of the scraper bowl. The unit is unique in that it has no tractor, adding to its maneuverability and allowing it to make short turns.

The scraper has been tested with a hydraulically controlled bulldozer blade which is removed when the unit is applied to high speed haulage.

The 4-wheel drive principle provides excellent traction. Field tests to date, on the Ohio Turnpike and on coal stockpiles, indicate that this scraper has the ability to self load in many materials. These experimental units are now being assigned to construction operations to accumulate field experience under actual job conditions. No production of this model is scheduled for 1954, pending the outcome of these field tests.

● Whenever possible, leg amputations should be made at the knee joint rather than through the thigh, three Army surgeons urged at the meeting here this morning of the American Academy of Orthopaedic Surgeons.

The Army surgeons are Col. Joseph W. Batch, Col. August W. Spittler and Capt. James C. McFaddin of Walter Reed Army Hospital, Washington, D. C.

They gave the following advantages of the knee amputation:

1. Since the thigh muscles are retained functionally, early fitting of an artificial limb is possible.

2. The knee stump assists both in the control of rotation as well as lifting of the artificial limb.

3. An excellent gait is obtained almost immediately.

4. Motion of the thigh is true hip motion and not a result of pelvic thrust.

5. Without the artificial limb, the amputee may kneel on a chair or on the floor in work or play.

6. Muscle and bone are not transected which minimizes the spread of infection after the operation.

7. The stump heals rapidly; is firm and insensitive.

8. An excellent fitting artificial limb is readily fabricated which requires fewer adjustments and is superior to artificial limbs for higher levels of amputation through the thigh.

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Phone ALlegheny 1-3600

Belknap Coal Washer, 140 TPH. Sizes ½ x 4. Good as new.
Lima 802, High Front Shovel, 1¾ yd., Boom 34, stick 22. Excellent condition.
Jeffrey New 8 ft. HU Aerodyne Mine Fan complete with 175 HP motor control, v-belt dr., 10.5 water gauge. Price open.
GE 500—KW Syn. Converter, 600-V with Trans.
GE 300 KW Mg. set, 250-V Fully Automatic.
McNalley 75 TPH Coal Washer—sizes ½ to 4" —Plant complete with all conveyors—shaker dewatering screens, electrical equip.
Northwest 80 D 2 yd. shovel.
Northwest Model 6—1½ yd. shovel.
Caterpillar D8 Dozer and D7 Dozer.
Air Compressor Gardner Denver 315 CFM.
Joy 8 BU Loaders—5 price right.
Joy MTB 30" Belt Conveyor—40 HP.—Permissible.
Joy 11 BU Loader 250 V DC— A-1 machine.
Joy 14 BU Loaders—very good machine.
Joy E Loading Heads—PL 8 PE 250 V. DC.
Slope Hoist 400 HP. with GE Controller.
Shaft Hoist 700 HP. complete controls.
W. H. 8 ton 500 V 36" go permissible loco.
Ohio Brass 15 HP. Automatic starters 600 V.
Jeffrey Permissible Distribution Box 550 V.
Jeffrey 56 A Track Type Drills.
CD-4 Track Type Coal Drills. Bargain.
Goodman—512 Shortwall Cutters. Permissible.
Bugdustergs and Joy Cat. trucks A-1.
Champion Light Conveyor—42" x 8'
4 Large Steel Bins 70 T and 140 Tons.
Myers Wholey track or Cat. type Loaders and track type converted to Caterpillar.

Wanted—Hydraulic Track Type Drills or on rubber, 580 CP Preferred.

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Drills holes faster — Will not snap off shank or chip points — Outlasts four or five ordinary augers.
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PENNSYLVANIA WOMAN WRITES BOOK ABOUT COAL MINER'S DAUGHTER

Edward Uhlan, president of Exposition Press, announced today that Exposition has accepted for publication "Thrills, Chills, and Sorrow," written by Mrs. Stella Rybacki of Imperial, Pennsylvania. The story of a Pennsylvania coal miner's daughter, Mrs. Rybacki's novel is scheduled for publication in April.

In announcing the acceptance of "Thrills, Chills, and Sorrow," Mr. Uhlan told the author, "There is a heightened goodness about the book, a sense of true Christianity and the Golden Rule, a depth of feeling and emotion which far surpasses what one usually finds in stories of this sort. The drama and excitement, the adventure, the gaiety, the sorrow, and, most of all, the deep and abiding faith of this novel were most impressive. I think that it might be a book which would bring more beauty, happiness, and understanding into the lives of its readers."

Stella Rybacki is herself the wife of a coal miner, Joseph Rybacki. She is a member of the Parent-Teachers' Association of West Allegheny High School and of the Ladies' Auxiliary of the Veterans of Foreign Wars.

Other recent Exposition books by Pennsylvanians include "Stairway To My Heart," by Madge Kensey Buck, of Wilkes Barre, also slated for Spring publication, and "The Young Engineer," by Charles Broschart, of Philadelphia, which was just published.

● A new 8½-ton capacity dump body hoist is announced by The Galion Allsteel Body Company, Galion, Ohio.

Known as Allsteel Model 740, the new unit weighs 1,025 lbs. Capacity is rated on the basis of a 10 ft., 4-yard dump body.

Model 740 features include an all-steel subframe with underbody double lift arms. Piston rod diameter is 2½ inches and stroke is 19⅛ inches. There are 4.3 gals. of oil in the hydraulic system and piston stroke oil displacement is 765 cubic inches. Cylinder diameter is 7.156 inches. Mounting height is 14 inches and hoist has a 50 degree dump angle.

The hoist is equipped with a heavy duty pump which can be applied in either vertical or horizontal position.

● Marion, Ohio, announces the addition of Model 920, a new 2 cu. yd. Shovel, Hoe, Dragline, Clamshell and Crane combination machine, to its full line of excavating and materials handling equipment.

The Model 920 was engineered to meet the increasing demand by the construction and allied industries for a two cubic yard excavator and materials handler that is fast, powerful and rugged, providing high production with a minimum of downtime.

In its design, the Model 920 includes those basic, time-tested OSGOOD features . . . OSGOOD Air Control, with patented Air Tube Clutch, which permits the operator to obtain the ultimate in smoothness of operation, through metered air power. Deck is one-piece, unit cast-steel construction, providing a rigid sturdy base for the operating machinery. The deck side frames are of cast steel, holding the horizontal shafts in fixed alignment. Cab gives complete protection to all parts, and is designed to give the operator full vision of his work, and protection from the weather.

Standard Shovel boom is box type, of high strength, low alloy steel, is 23′-0″ long with an 18′-0″ dipper handle. Independent chain crowd, with two-piece chain, is self-adjusting to any boom angle. Crowd and retract sprockets are mounted on the drum in two other class of service in the field pieces. Conversion from Shovel to other class of service in the field is rapid and easy.

Boom for Crane, Clamshell and Dragline service is lattice type, all-welded, with tubular lacing. This boom may be either flange or pin connected . . . with pin connected boom designed to fold. Inserts of 5, 10, 15 and 20 ft., and jibs of 10, 15, 20, 25 and 30 ft.length, are available.

A feature of this sturdy crawler unit is the demountable side frames. By removing bolts and plates, the side frames may be completely removed (crawlers, tumblers, side frames, as a unit) to reduce weight when machine must be transported over the highways thus eliminating a major "rebuilding" job when the new work site is reached.

Crawlers are 15′ long, and 12′-1½″ wide overall, with standard 31″ treads, 36″ treads are also available.

Standard engine is the GM 6-71 Diesel. Torque Converters, (optional) may be added to the power unit, for the highest degree of operating smoothness, lower the maintenance costs through reduced machinery shock, wear-and-tear, and increase production up to 25% above average.

Additional details and specifications on the 2 cu. yd. OSGOOD Model 920 are given in Specification No. 5326, available from OSGOOD — GENERAL, P. O. Box 515, or from an OSGOOD-GENERAL Distributor.

NEW CATERPILLAR SAFETY PROMOTION FILM

Left to right: Mr. William Hawkins, Dean Blomeyer, and Dick Bulkley. Dean Blomeyer, head of film production at Caterpillar Tractor Co., presents the first copy of the new Caterpillar Safety Promotion film, "The Gamblers." to Mr. William Hawkins, Chairman of the audio-visual committee of the National Safety Council's construction section. The presentation was made prior to the premier showing of "The Gamblers" before the construction section at the National Safety Congress in Chicago in October, Dick Bulkley, Executive Director of Calvin Company of Kansas City, Mo., directed and produced the film.

A bulldozer operator forgot one of the pricipal safety rules upon leaving his machine after a day's work—he left his dozer blade up. Because of this, the machine can become a deadly weapon, particularly when a group of curious kids start climbing over and under the unit and pulling all the levers they can lay their hands on. This is a scene from Caterpillar Tractor Co.'s new film, "The Gamblers."

The operator of this tractor-scraper forgot to close the petcock on the air supply tanks for his brakes. Consequently he didn't have any brakes when he met a car at an intersection and this is the result. This is a scene from Caterpillar Tractor Co.'s new film, "The Gamblers."

● The Jeffrey Manufacturing Co., Columbus, Ohio, announces that it has acquired all rights, title, and interest in and to letters patent from K. L. Konnerth, Vice President, Operations—Coal Division, United States Steel Corporation, on a continuous mining machine which, heretofore, has been engineered and manufactured by Jeffrey. This machine, designated as 34-F, supplements Jeffrey's present line of continuous mining machines for coal.

The 34F machine has been in use for several years, and currently 73 of these machines are in operation or in process of manufacture. These continuous mining machines are operating in mines of the United States Steel Corporation and mining coal considerably below the costs at which coal is produced by conventional methods.

The machine embodies the principles of frontal attack utilizing a combination of digging and loading elements and vibrating hammers, the latter operating at a critical frequency to break down the coal. The entire machine is mounted on crawlers and the hammers are mounted on a carriage adjustable to various seam heights. All elements are electrically powered either through mechanical or hydraulic transmissions. The digging and loading portion of the unit, including hydraulic pumps for actuating all movements of the machine, is driven by on 70 h. p. continuously rated motor. A power truck which converts direct current mine power to alternating current of lower frequency than 60 cycles is provided to operate the hammers.

● Osgood-General, Marion, Ohio, manufacturers of power excavators, cranes and materials handling equipment, announce the release of Specification No. 5326, on the new crawler-mounted 2 cubic yard, Model 920 Shovel, Dragline, Clamshell, Hoe and Crane.

This four page specification includes all dimensions, lifting capacities and weights of the machine for its different classes of service. It also illustrates the demountable side frames of the crawlers, a feature provided for economy and ease of transporting machine from one location to another.

Specification No. 5326 can be obtained from Osgood-General, Marion, Ohio, or from any Osgood-General Distributor.

High truck beds or storage bins can be filled quickly by Le Roi Transo TLF-150 front end loader. Plenty of room remains between loader and truck, yet falling material is filling truck from center. The 1½ yard bucket can be raised to full dumping height of ten feet (lip of dumping bucket to ground). The powerful engine, torque converter and clutch type reversing transmission allows smooth 95% faster reversing. Within seconds operator was starting another loading cycle.

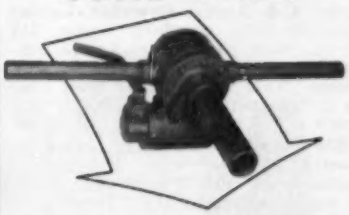
Faster, Safer DRILLING

with the

SCHROEDER

MODEL 12-B

COAL DRILL



Light-Weight! Hydraulic!

The Model 12-B Coal Drill gives you safe, dependable fast drilling with complete operational safety . . . no spark, no kick . . . all electrical hazards are removed yards from the drill. Powered from the hydraulic power systems of standard mining equipment, the Model 12-B is simple in design. It has a minimum of operating parts resulting in greatly reduced maintenance costs.

Write or call for details and demonstration.

Hydraulic Power Units are available for several non-hydraulic mining units. Wheel or skid mounted power units can also be furnished. Write or call for particulars!

Hydraulic, Electric & Pneumatic Mining Equipment

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● **An excellent stock of quality used machinery—most having been taken in trade on new Caterpillar machines. All guaranteed to be exactly as listed—your assurance of the best in used equipment.**

ITEM P163 — Caterpillar Model D8 Tractor equipped with crankcase guard, front pull hook, LeTourneau double cable control and LeTourneau angledozer (Repainted) F.O.B. Pittsburgh, Pa. ---------- **$3,900.00**

ITEM C116 — Caterpillar Model D7 Tractor, with LaPlant Choate hydraulic angledozer, reconditioned in our shop, in good running condition and appearance. New paint. F.O.B. Pittsburgh, Pa. ---------- **$7,000.00**

ITEM C118 — Allis-Chalmers HD14C Tractor with Baker hydraulic straight blade. Needs some engine repairs but track, rollers and appearance good. F.O.B. Clearfield, Pa. ------ **$2,632.00**

Model C-8 Austin Overshot Loader complete with standard bucket 3½ cu. yd., with parts necessary to convert No. 25 Cable Control for use with loader. This machine has been used for demonstration only. F.O.B. Pittsburgh, Pa. ---------- **$6,845.00**

ITEM P165 — Caterpillar Model D8 Tractor equipped with LeTourneau double drum cable control unit, cleaned and painted. F.O.B. Pittsburgh, Pa. ---------- **$3,500.00**

ITEM P174 — BDH Cletrac with Heil hydraulic angledozer and Carco winch, equipped with Hercules diesel engine, new idlers, good tracks, crankcase guard, and hood doors, 1950 model. F.O.B. Pittsburgh, Pa. ---- **$3,612.00**

ITEM B124 — PL-20 Caterpillar Tractor, equipped with Luther Oil Well Winch. F. O. B. Bradford, Pa. **$400.00**

ITEM P131 — Caterpillar Model D4—44" bare Tractor, 1950 model, crankcase guard, front pull hook, engine rebuilt and guaranteed also new top rollers, total hours: 2546. Repainted and decaled. F.O.B. Pittsburgh, Pa. **$3,500.00**

Model 2-SC Whitestown Trencher No. 359, boom, bucket, 2 control rods, self cleaning bucket with teeth for D4-HT4 tractor, F.O.B. Pittsburgh, Pa. **$1,150.00**

ITEM P130 — Caterpillar Model D4—74" Tractor equipped with ¾ yd. bucket, very good running gear. Motor has low hours since last overhaul. Cleaned, painted and decaled, F.O.B. Pittsburgh, Pa. ---------- **$1,957.00**

ITEM C133 — Caterpillar No. 212 Motor Grader, with cab and small front tires. Heater, new seats, new glass. Good running condition. Repainted and decaled. F.O.B. Clearfield, Pa. ---------- **$3,496.50**

● **All items subject to prior sale. All may be inspected at location shown. Pictures and additional information furnished on request . . . write, wire, phone your needs today!**

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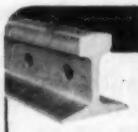

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LORAIN 87 WITH 2 COMPLETE FRONTS
1—Standard Front Complete
1—Stripping Front Complete
Completely Rebuilt from Ground Up in 1951
BOYLES COAL & SUPPLY CO.
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SHOVEL, MANITOWOC 3500 Stripper
45' Boom, 34' sticks, 2 yd. Dipper
Caterpillar D-17000 Diesel Engine
Price: $35,000.00
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FOR SALE
1-75 K W, 250-V Caterpillar Diesel, Gen. Set.
1-100 K W, 250-V Buda Diesel, Gen. Set.
1-75 KVA1220-440-V Caterpillar Diesel, Gen. Set.
MEYER BROTHERS
Phone 701 Philipsburg, Pa.

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●

Caterpillar Model D8 Tractor, equipped with crankcase guard, front pull hook, LeTourneau Double Drum Cable Control and LeTourneau Angledozer. Item P-163. A real bargain at only **$3,900.00. F. O. B. Pittsburgh, Penna.**

●

Caterpillar D8 Tractor equipped with crankcase guard and radiator guard. Mounted with LeTourneau Model AKS Angledozer and LeTourneau Double Drum Cable Control. This tractor has had the final drives, swing frames, transmission steering and master clutches overhauled. All new rollers. A good profit-producing machine for coal stripper. Item P-115.
$6,500.00. F. O. B. Pittsburgh, Penna.

●

All Items subject to Prior Sale

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SHOVEL & DRAGLINE COMBINATION
MANITOWOC Model 3500
80' Boom, 3 yd. PAGE Bucket, 35' Shovel Boom, 27' Sticks, 2½ yd. Dipper
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FEBRUARY, 1954

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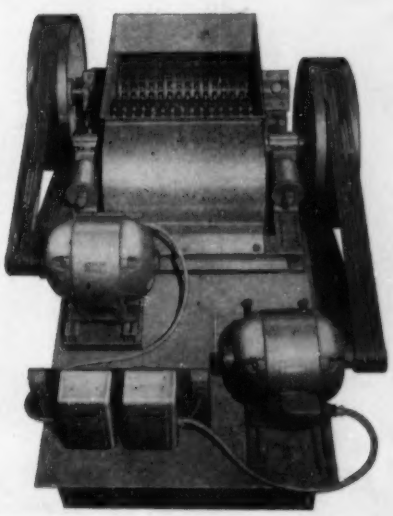


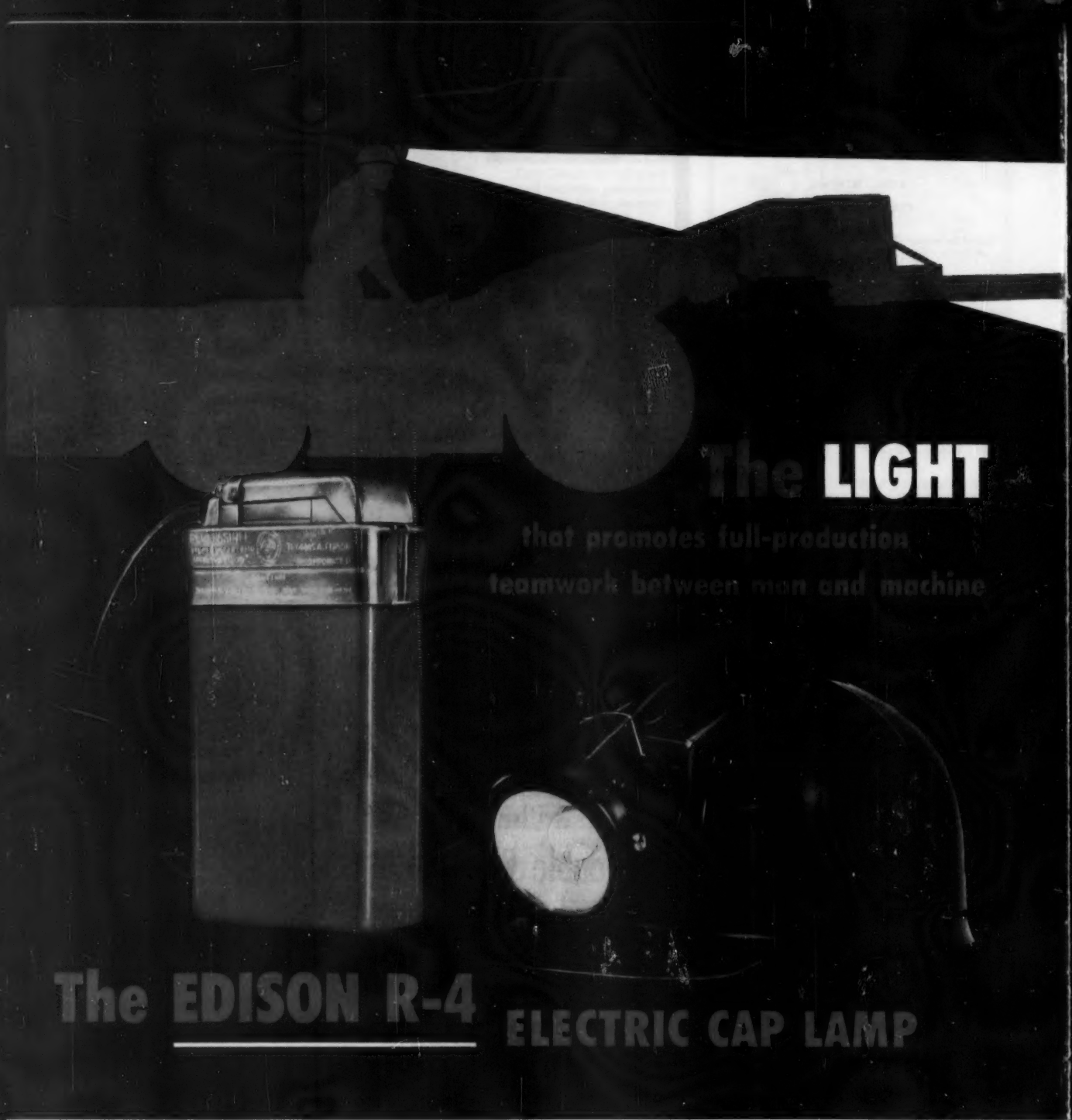
● Designed for higher tonnage output at a savings in power consumption, the shredding action of the crusher's toothed double rolls produces a more consistent product which will boost sales and profits. The Scottdale has forged steel toothed gears; welded steel base, bronze bushed journal bearings; welded steel hopper, grooved flywheels.

NO. 63 SPECIAL — 2 Motor Drive — Produces a Product ¾" to 8". Equipped with Two Grooved Flywheels. (No Gears)

Send for data and prices . . .

SCOTTDALE MACHINE, FOUNDRY & CONSTRUCTION CO.

DEPT. CM BOX 51 SCOTTDALE, PA.



Throwing a brilliant, unfailing beam, the Edison R-4 Electric Cap Lamp supplies the *extra* illumination that lets the miner apply maximum skill to utilize the greater output that's built into today's mechanized equipment. The result—man and machine become a smooth, efficient, peak producing unit.

Let us show you how this vital mining aid can help you get full production capacity from mechanization, safely.

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COMPTON Model 36 Coal Auger

designed for { Maximum recovery ...at Minimum cost

The new Compton Model 36 Coal Auger is the answer to the demand for rapid, economical high wall recovery in small, narrow pits. Only 36 feet long and weighing approximately 25 T., the Model 36 includes all the design advantages of the other Compton Coal Augers.

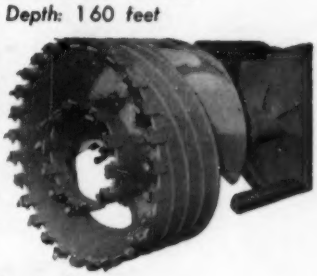
- Convenient, accessible auger sections racked on the frame.
- Synchronized winches for handling auger sections.
- Hydraulically operated pilot pan eliminates spillage between machine and highwall.
- Elevating conveyor is integral part of machine.
- Hydraulically-controlled swiveling discharge chute permits uniform trimming of trucks.
- Hydraulic jack legs (with self-leveling pontoons for better floatation) allow drilling up to 160 feet without misalignment.
- Single or vertical overlapping holes can be drilled in varying coal seam thickness.

The Compton Model 36 Coal Auger paves the way to higher quality through selective mining! Up to 60 Tons per hour recovered in actual production tests! Plan today to expand your present or future developments with Compton Coal Augers.

(Write for details about other Compton Auger Models 42, 48 and 56.)

Model 36 SPECIFICATIONS

Length: 36 *feet* *Weight: Approx.* 25 *T.*
Carries eight 20 *ft. auger sections*
Required pit width: 38 *feet min.*
Power: 150 *hp Diesel engine*
Hydraulic Frame Jack Lift: 54 *inch*
Auger Diameters: 44 *inch to* 24 *inch*
Possible Drilling Depth: 160 *feet*



The Compton Cutting Head — non-clogging type with a built - in spider bearing assembly — increases production by drilling straighter holes with less frictional drag.

Consult a Compton Engineer for Details

Compton, Inc.

ORIGINATORS OF COMPTON LUMP RECOVERY HEADS

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